Internet Access Services: Status as of December 31, 2014

Industry Analysis and Technology Division
Wireline Competition Bureau
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SECTION 1: OVERVIEW & HIGHLIGHTS

Introduction

This report summarizes information about Internet access connections in the United States as of December 31, 2014, and also as of June 30, 2014, as collected by FCC Form 477. We are not releasing a separate report on status as of June 2014.[1] For purposes of this report, Internet access *connections* are those in service, over 200 kilobits per second (kbps) in at least one direction, and reported to the FCC through Form 477.[2]

The report includes data on total and residential Internet access connections by downstream and upstream speed, by technology, by geography, and over time. Previous reports presented data on connections with downstream speeds of at least 3 Mbps and upload speeds of at least 768 kbps.[3] We have maintained those figures in this report[4] for the sake of data continuity but may discontinue them in future reports as we move to present more data on connections with speeds of at least 10 Mbps downstream and 1 Mbps upstream. Section 2 of the report presents nationwide statistics, Section 3 provides state-level data, and Section 4 includes data on the subscribership differences among counties and census tracts.[5] In addition, Section 5 of the report includes an analysis of the correlations between subscribership ratios and various demographic measures.[6] Maps depicting the number of fixed connections per 1,000 households by census tract and the number of fixed providers by census block are available online at https://www.fcc.gov/reports-research/reports/internet-access-services-reports/internet-access-services-reports.

FCC Form 477 Data

Overview. The information presented in this report is based on data from FCC Form 477. Through Form 477, 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. Form 477 is submitted by providers in all fifty states, the District of Columbia, and inhabited U.S. territories. Facilities-based providers of broadband Internet access services include telephone companies, cable system operators, terrestrial wireless service providers, satellite service providers, and other facilities-based providers of advanced telecommunications capability.

[1] *See* p. 2 for a discussion of the June 2014 data.

[2] *See* the FCC Form 477 Data discussion below, as well as the Technical Notes and Glossary at the end of this report, for more-detailed information about the Form 477 data collection and the meaning of terms used in this report.

[3] *See, e.g., High-Speed Services for Internet Access: Status as of December 31, 2013* (October 2014), Tables 2, 4, 7, and 8; and Charts 8 and 9, available at https://www.fcc.gov/reports-research/reports/internet-access-services-reports/internet-access-services-reports.

[4] *See* Figures 17-20.

[5] 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) (*December 2008 High-Speed Report*) at 1-4, available at http://www.fcc.gov/encyclopedia/high-speed-services-internet-access-reports.

[6] Publicly-available data that are too voluminous to include in this report are available online at https://www.fcc.gov/general/fcc-form-477-additional-data.

Changes implemented in 2014. In June 2013, the Commission adopted several changes to Form 477.[7] First, the Commission began collecting data on broadband deployment, an effort previously overseen by the National Telecommunications & Information Administration in coordination with states. Fixed broadband providers now submit through Form 477 census block-level data on where they can or do make broadband service available by technology, by maximum advertised upload and download speed, and with an indicator of whether the service is offered to residential and/or business customers. Mobile broadband providers now submit geospatial data on their broadband network coverage areas by technology, spectrum band, and minimum advertised upload and download speed.[8]
Second, the Commission eliminated the use of speed tiers for the collection of data on Internet access subscribership as well as deployment.[9] These changes were implemented with the collection of data as of June 30, 2014, and the June 2014 and December 2014 data in this report reflects those changes.

Speed tiers. Because the Commission eliminated the use of speed tiers for the collection of data on Internet access subscribership beginning with the collection of data as of June 30, 2014, filers now report the number of connections by the advertised speeds associated with each product subscribed to in the relevant geographic area, census tracts for fixed and states for mobile.[10] Filers are directed to report the advertised speed of the purchased service, and it is possible that the purchased service will not operate at its advertised speed at all times. Fixed providers report connections by the maximum advertised upload and download speeds, while mobile providers report connections by minimum advertised upload and download speeds.[11] Reporting entities no longer place connections into speed tiers defined by predetermined ranges of upload and download speeds.

Mobile Internet access connections. As a result of the changes adopted in the *June 2013 Form 477 Order*, Form 477 filers began reporting mobile Internet access connections by minimum, rather than maximum, advertised speeds in 2014. Therefore, comparisons of mobile Internet access connections by speed in 2014 with previous time periods and with fixed connections are problematic, and we have not included any such comparisons in this report.

June 2014 data. The first Form 477 filing that implemented the changes discussed above was the filing of data as of June 30, 2014. Form 477 filings of data as of June 30 are typically due the following September 1. However, due to technical difficulties with the redesigned Form 477 filing interface, the filing deadline for Form 477 data as of June 30, 2014 was moved to December 11, 2014.[12] Because of that delay, the Commission staff were not able to perform their typical process of identifying anomalies or

[7] *Modernizing the FCC Form 477 Data Program*, WC Docket No. 11-10, Report and Order, 28 FCC Rcd 9887 (2013) (*June 2013 Form 477 Order*).

[8] Figure 5 of the report, as well as some of the maps, previously relied on tract-level fixed broadband subscribership data as a proxy for availability and now are based on block-level fixed broadband deployment data.

[9] *See* the following paragraph for more information on this change.

[10] The Commission has sponsored tests of actual consumer broadband speeds. *See, e.g.*, Federal Communications Commission, Office of Engineering and Technology and Consumer and Governmental Affairs Bureau, *2015 Measuring Broadband America Fixed Broadband Report* (December 2015), available at www.fcc.gov/measuring-broadband-america.

[11] While the maximum advertised speed is a reasonably reliable indicator of the speed of fixed service that subscribers receive, a wireless service provider's targeted minimum data speed in a market typically is a primary driver of the wireless network design that determines the market coverage boundaries. *See June 2013 Form 477 Order*, 28 FCC Rcd at 9908-09, 9915, paras. 42 n.138, 62.

[12] *Form 477 Filing Interface Reopened; Filings of Data as of June 30, 2014 Due December 11, 2014*, WC Docket No. 11-10, Public Notice, 29 FCC Rcd 13910 (WCB 2014).

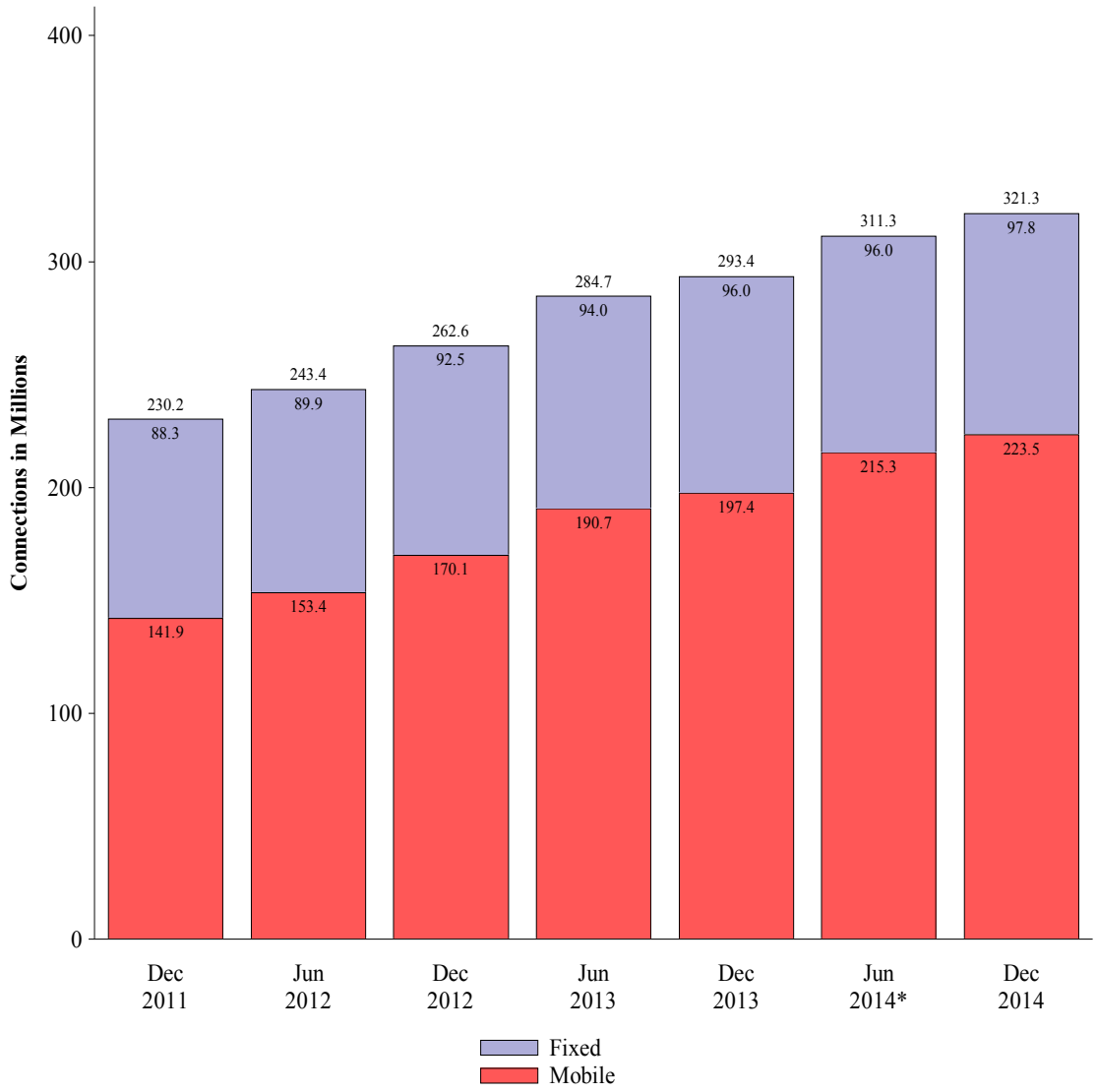
errors in the data, following up with filers, and requesting updates to the data where appropriate – a process which usually generates a significant number of corrections and hence a more accurate Form 477 data set. We have presented those data in this report only in figures with time series data and will not be releasing a separate report with the June 2014 data.

Total Connections

- As shown in Figure 1, the total number of Internet connections increased by 9% between December 2013 and December 2014 to 321 million.

- Most of the growth in total Internet connections is attributable to increased mobile Internet access subscribership. The number of mobile Internet connections increased 13% year-over-year to 224 million in December 2014, while the number of fixed connections grew to 98 million – up 2% from December 2013.

Figure 1
Fixed and Mobile Connections 2011-2014



* The June 2014 data have not been subjected to the typical quality checks.

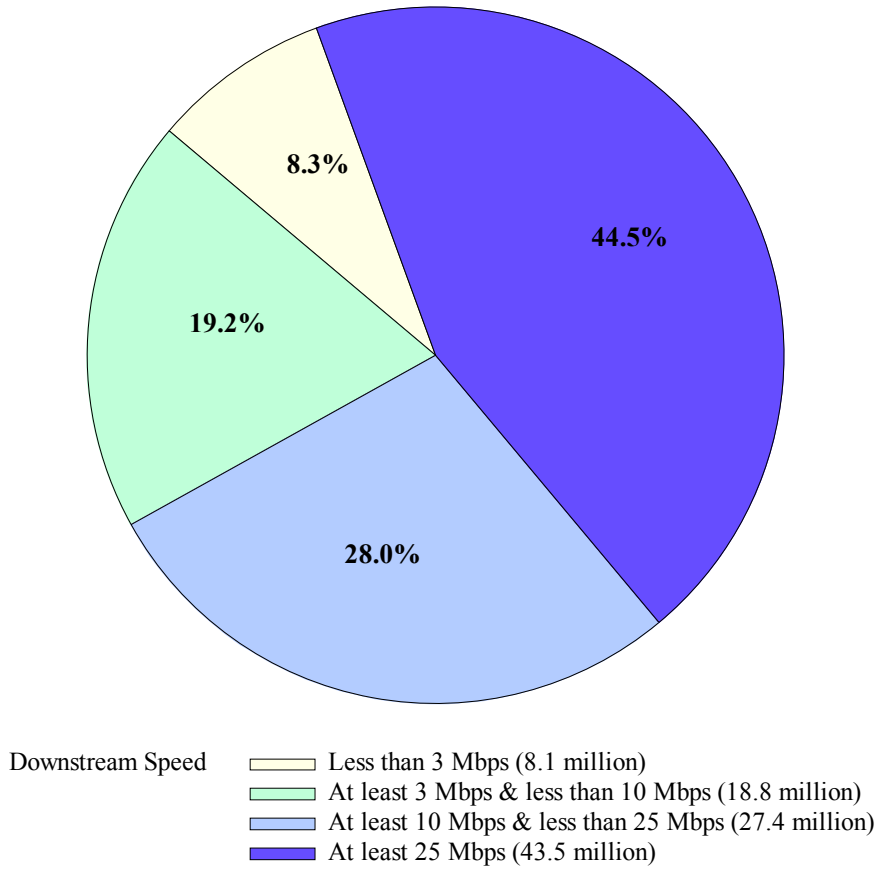
The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see pages 1-2). Some previously-published data may have been revised. Figures may not sum to totals elsewhere in this report due to rounding. Connections include both residential and business connections.

Connections by Speed

This section of the overview presents information on fixed and mobile connections by downstream and upstream speeds. We divide fixed connections into four downstream speed groups with breakpoints at 3 Mbps, 10 Mbps, and 25 Mbps, and into three upstream speed groups with breakpoints at 1 Mbps and 3 Mbps. We divide mobile connections into four downstream speed groups with breakpoints at 3 Mbps, 6 Mbps, and 10 Mbps, and into the same three upstream speed groups with breakpoints at 1 Mbps and 3 Mbps.

Fixed connections – downstream speeds. Figure 2(a) illustrates how the 98 million fixed connections reported for December 2014 were distributed across the four groups of ***downstream speeds*** defined by breakpoints at 3 Mbps, 10 Mbps, and 25 Mbps.

Figure 2(a)
Distribution of Fixed Connections (97.8 million) by Downstream Speed
as of December 31, 2014

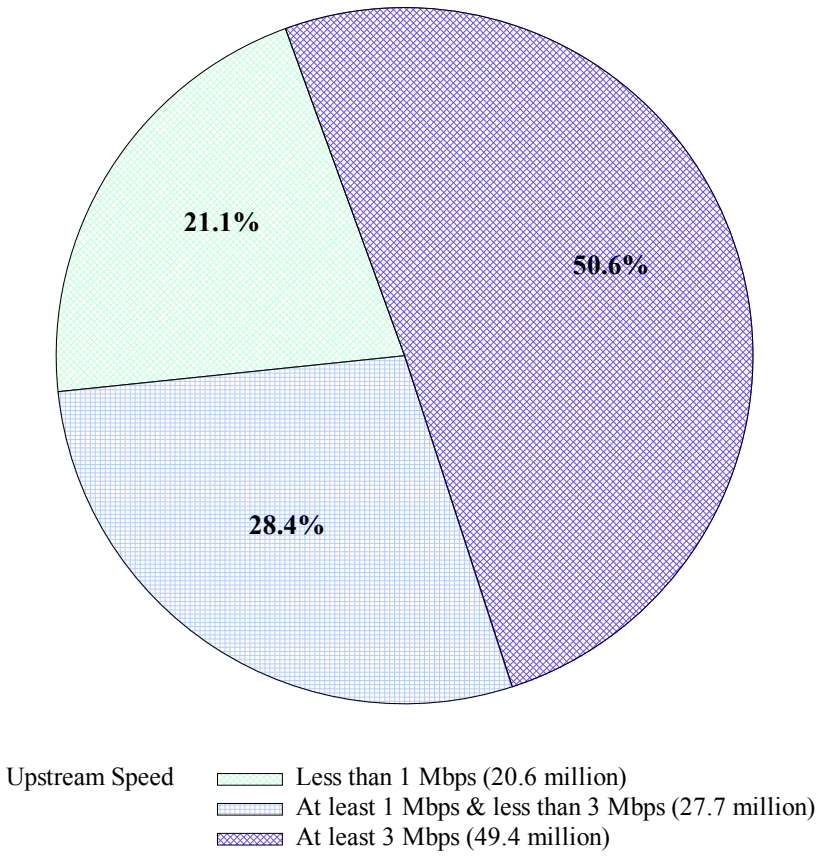


- In December 2014, 8% of fixed connections (or 8 million connections) were slower than 3 Mbps downstream, 19% (or 19 million connections) were at least 3 Mbps downstream but slower than 10 Mbps, 28% (or 27 million connections) were at least 10 Mbps downstream but slower than 25 Mbps, and 45% (or 44 million connections) were at least 25 Mbps downstream.[13]

[13] *See* Figure 8.

Fixed connections – upstream speeds. Figure 2(b) illustrates how the 98 million fixed connections reported for December 2014 were distributed across the three groups of ***upstream speeds*** defined by breakpoints at 1 Mbps and 3 Mbps.

Figure 2(b)
Distribution of Fixed Connections (97.8 million) by Upstream Speed
as of December 31, 2014

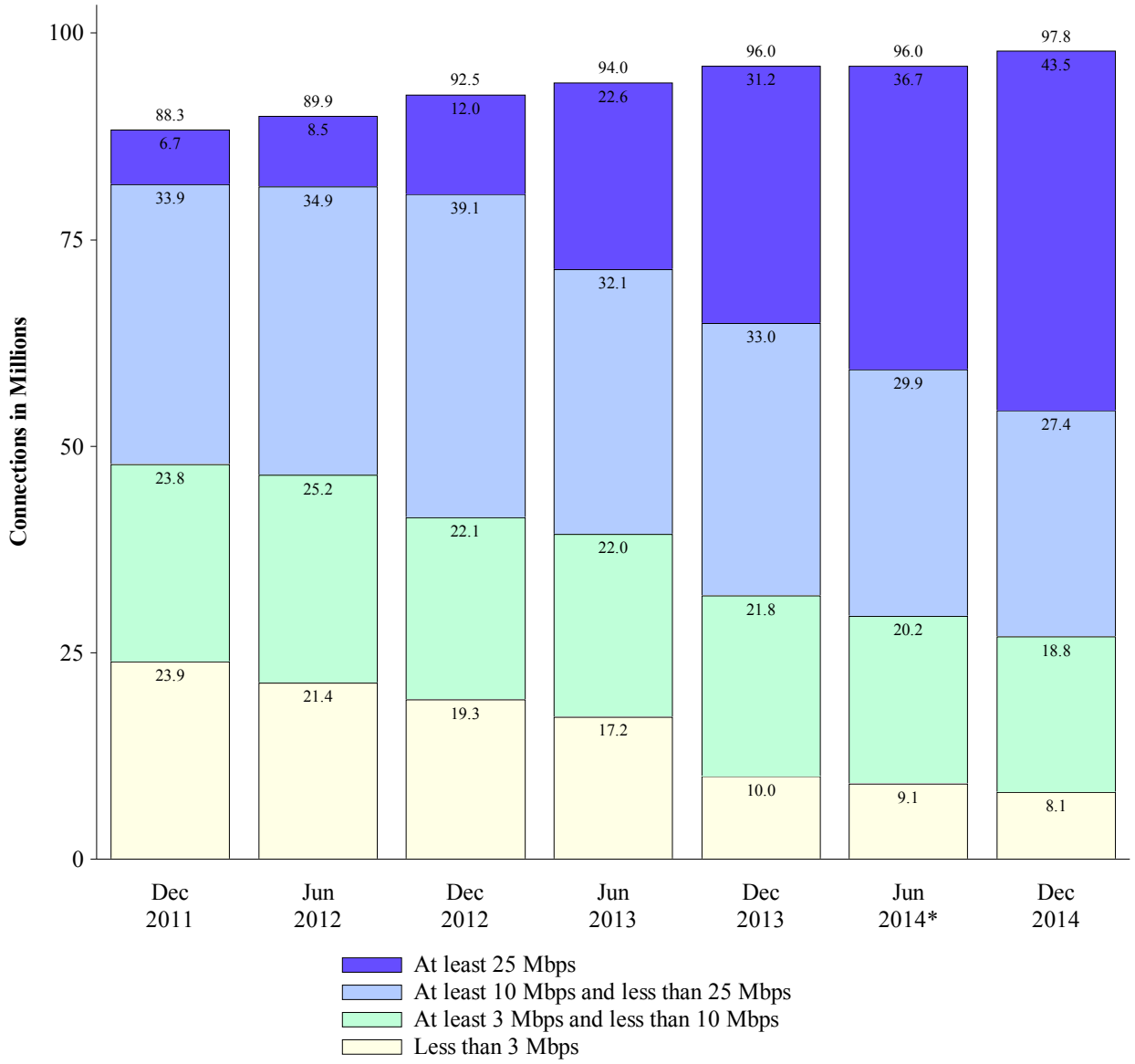


- In December 2014, 21% of fixed connections (or 21 million connections) were slower than 1 Mbps upstream, 28% (or 27 million connections) were at least 1 Mbps upstream but slower than 3 Mbps, and 51% (or 49 million connections) were at least 3 Mbps upstream.[14]

Fixed connections by downstream speed over time. Figure 3 illustrates how the composition of total fixed Internet connections by different speed groups has changed from 2011 to 2014.

[14] *Ibid*.

Figure 3
Fixed Connections by Speed 2011-2014



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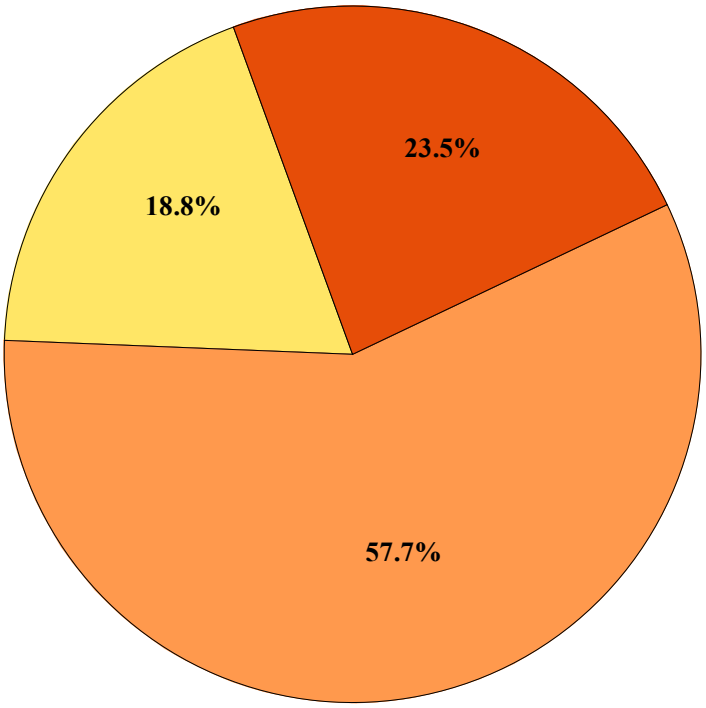
- The percentage of fixed connections with a downstream speed of at least 25 Mbps has grown from 8% (or 7 million connections) in December 2011 to 45% (or 44 million connections) in December 2014. Over the same period, the percentage of fixed connections with slower downstream speeds of less than 3 Mbps has decreased from 27% (or 24 million connections) in December 2010 to 8% (or 8 million connections) in December 2014.[15]

[15] *See* Figure 26.

Mobile connections – downstream speeds. Figure 4(a) illustrates how the 224 million mobile connections reported for December 2014 were distributed across the three groups of ***downstream speeds*** defined by breakpoints at 3 Mbps and 6 Mbps.

Figure 4(a)
Distribution of Mobile Connections (223.5 million) by Minimum* Downstream Speed as of December 31, 2014



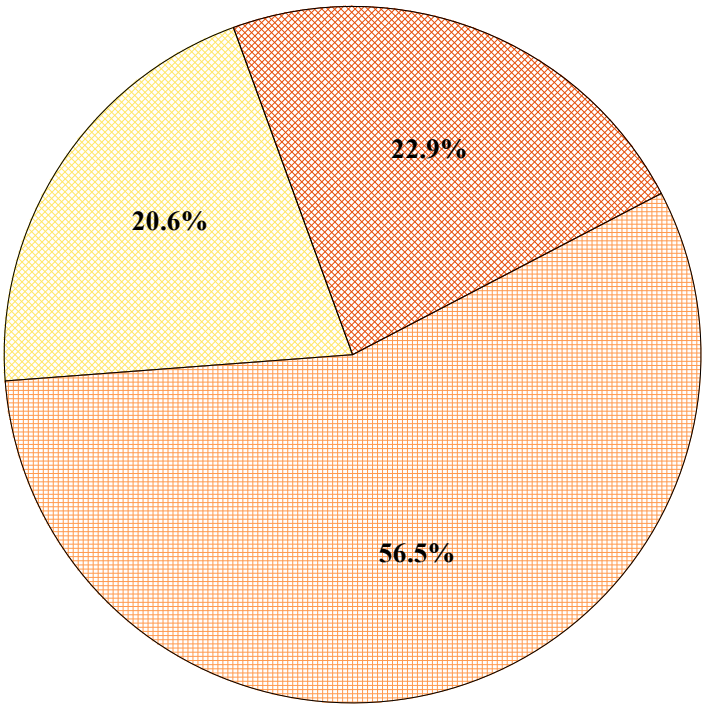
Downstream Speed
- Less than 3 Mbps (42.0 million)
- At least 3 Mbps & less than 6 Mbps (129.0 million)
- At least 6 Mbps (52.5 million)

* Form 477 collects mobile broadband subscription data by minimum advertised bandwidths.

- In December 2014, 19% of mobile connections (or 42.0 million connections) were slower than 3 Mbps downstream, 58% (or 129 million connections) were at least 3 Mbps downstream but slower than 6 Mbps, and 24% (or 53 million connections) were at least 6 Mbps downstream.

Mobile connections – upstream speeds. Figure 4(b) illustrates how the 224 million mobile connections reported for December 2014 were distributed across the three groups of ***upstream speeds*** defined by breakpoints at 1 Mbps and 3 Mbps.

Figure 4(b)
Distribution of Mobile Connections (223.5 million) by Minimum* Upstream Speed as of December 31, 2014



Upstream Speed
- Less than 1 Mbps (46.1 million)
- At least 1 Mbps & less than 3 Mbps (126.2 million)
- At least 3 Mbps (51.2 million)

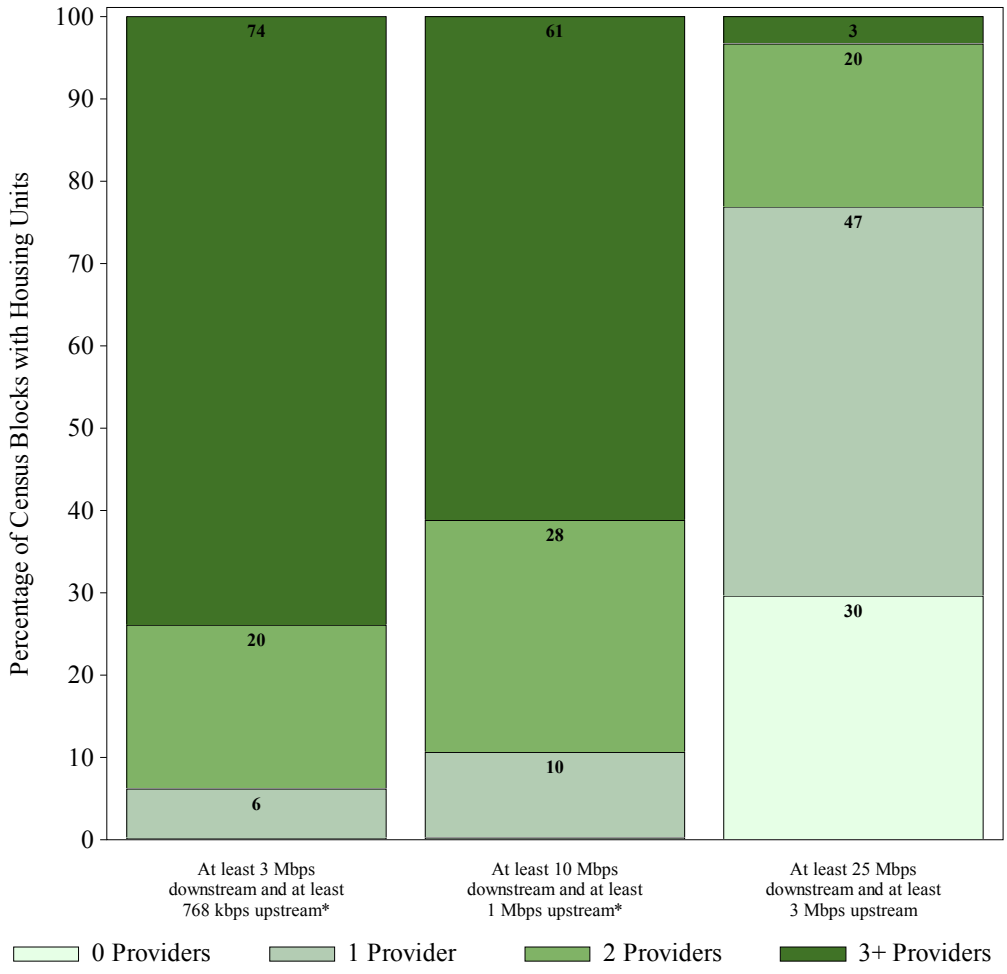
* Form 477 collects mobile broadband subscription data by minimum advertised bandwidths.

- In December 2014, about 21% of mobile connections (or 46 million connections) were slower than 1 Mbps upstream, 57% (or 126 million connections) were at least 1 Mbps upstream but slower than 3 Mbps, and 23% (or 51 million connections) were at least 3 Mbps upstream.

Number of Providers by Census Block

In Figure 5, we show the percentage of "developed" census blocks – blocks that contain housing units – with zero, one, two, or three or more fixed broadband providers offering residential Internet access service at different speeds in December 2014. This information is taken from the block-level Form 477 fixed broadband deployment data that the Commission began collecting in 2014. A provider that reports offering service in a particular census block may not offer service, or service at that speed, to all locations in the census block. Accordingly, the number of providers shown in Figure 4 does not necessarily reflect the number of choices available to a particular household and does not purport to measure competition.

Figure 5
Percentages of Developed Census Blocks in which Providers Reported the Deployment of Residential Fixed Broadband as of December 31, 2014



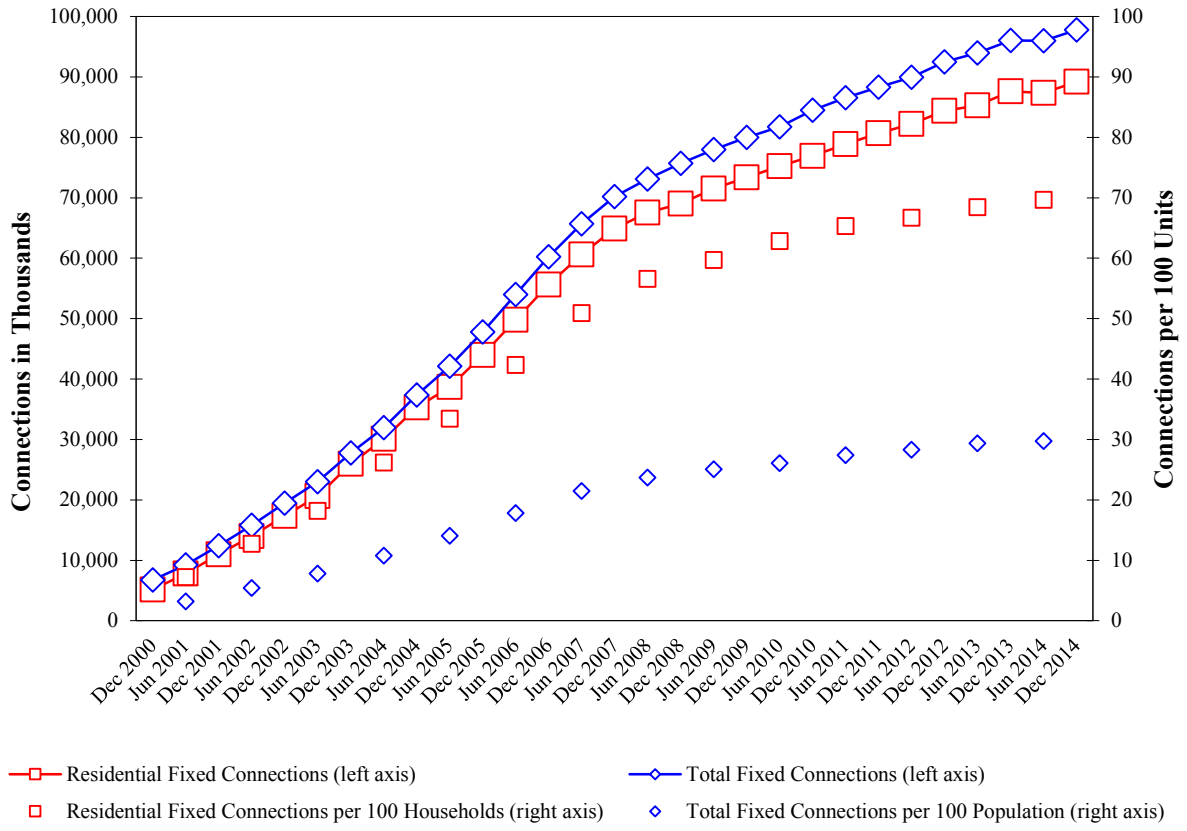
* Satellite service providers report offering Internet access at bandwidths of at least 10 Mbps downstream and 1 Mbps upstream in 99.4% of developed census blocks

Column figures may not sum to 100% due to rounding. Developed census blocks are those with housing units based on the 2010 census.

Internet Access Subscribership

Figure 6 illustrates the number of total and residential fixed Internet access connections (connections over 200 kbps in at least one direction except mobile wireless connections), as well as the number of total fixed connections per 100 persons and the number of residential fixed connections per 100 households, since 2000.[16]

Figure 6
Fixed Connections 2000-2014
(Connections over 200 kbps in at least one direction)



- Between December 2004 and December 2014, total (business and residential) fixed connections grew from 37 million connections to 98 million connections – at a compound annual growth rate of 10% per year.[17]

[16] For data through December 2004, only those providers with at least 250 connections in a state were required to report. Historical fixed-location connection counts not included in this report may be found in *June 2008 High-Speed Report* at Tables 1 and 3, available in Excel format at https://www.fcc.gov/general/reports-high-speed-services-internet-access.

[17] The compound annual growth rate (CAGR) is a smoothed rate of growth calculated in three steps. First, divide the ending (December 2014) value by the beginning (December 2004) value. Second, raise the result of that division to a power equal to one divided by the number of years in the period (in this case, 10 years, so the power is 1/10). Third, subtract the number one from the result of the second step.

- Over the same ten-year period, residential fixed connections grew from 35 million connections to 89 million connections – also at a compound annual growth rate of 10% per year.

- Between June 2004 and June 2014, the number of residential fixed connections per 100 U.S. households increased from 26 to 70.[18]

Other Report Highlights

Average speeds

- The median downstream speed of all reported fixed connections was 18 Mbps and the median upstream speed was 3 Mbps. For residential fixed connections, the median downstream speed was 20 Mbps and the median upstream speed was 3 Mbps.

Residential connections

- Residential fixed Internet access connections increased by about 2% between December 2013 and December 2014, to 89 million. See Figure 8.

- Residential (non-business) mobile wireless Internet access connections on mobile devices with data plans for full Internet access increased by 16%, to 185 million, between December 2013 and December 2014. See Figure 8.

- Over 70% of residential fixed connections had a speed of at least 10 Mbps downstream and 1 Mbps upstream in December 2014, while just under half (46%) had a speed of at least 25 Mbps downstream and 3 Mbps upstream. Ten percent of all residential fixed connections had a downstream speed of at least 100 Mbps. See Figures 11 and 29.

- As a national average in December 2014, there were 54 residential fixed connections with speeds of at least 10 Mbps downstream and 1 Mbps upstream per 100 households.[19] See Figure 32.

[18] We calculate residential fixed connections per 100 *households* using, in the denominator, U.S. household estimates from the Census Bureau's Current Population Survey (CPS) for July of each year and, for Puerto Rico and the other inhabited island areas, Census 2010 households for 2010 and later years and Census 2000 households for the earlier years. (The CPS also estimates U.S. households for March and November of each year.) Figure 6 also shows total (business and residential) fixed connections per 100 *population*, which we calculate using U.S. Census Bureau population estimates for the United States and Puerto Rico – which are as of July 1 each year – and, for the remaining inhabited island areas, Census 2010 population for 2010 and later years and Census 2000 population for the earlier years. This statistic incorporates connections to business locations into a comparison to persons. (We note that the ratio of accurately-measured residential fixed connections to population has a maximum value for any given country and point in time – the value when every household is connected – if we assume that no household would have more than one fixed connection to its premises. For the United States in June 2014, for example, the maximum value would be 39 because there were about 125 million households in the United States and inhabited insular areas and a population of about 323 million according to the sources used for Figure 6.)

[19] Increases over time in the ratio of residential fixed connections to households indicate that increasing shares of households are connected at home. The ratio is somewhat different from the "take rate" of offered service (which may also be called an "adoption rate") because some households may be located in areas where no fixed-location service is offered. These methodological differences are discussed in greater detail in *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996,*

Census tract and county shares of households with reportable connections

- We estimate the share of households with fixed Internet access connections in individual census tracts and counties as of December 31, 2014.[20] We continue to observe substantial variation among these estimates. See Figures 39 and 41.

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, age, and race. The data indicate that some demographic variables are correlated with Internet access subscribership rates. See Figures 46-52.

Amended by the Broadband Data Improvement Act, GN Docket No.11-121, Eighth Broadband Progress Report, 27 FCC Rcd 10342, 10386, para. 94 (2012).

[20] For both census tracts and counties, we continue to find estimates above 100% for the share of households with fixed Internet access connections. While this is likely to occur more frequently in areas where the number of housing units is substantially greater than the number of households, such as resort areas and beach communities, these results suggest that some filers are not accurately assigning customer connections to census tracts, and anecdotal evidence supports that conclusion. For example, while contacting Form 477 filers with questions about reported data, FCC staff continue to find situations in which all connections reported for a county have been assigned to a single, anomalous census tract.

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SUMMARY STATISTICS: THE NATION

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Figure 7
Connections over 200 kbps in at Least One Direction 2010-2014
(In thousands)

	2010	*2011*		*2012*		*2013*		*2014*	
Technology	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun**	*Dec*
Total	182,065	206,131	230,201	243,359	262,564	284,692	293,397	**311,284**	**321,305**
Total Fixed	84,521	86,575	88,317	89,945	92,511	93,986	96,032	**95,998**	**97,810**
Mobile Wireless	97,544	119,556	141,883	153,414	170,053	190,706	197,365	**215,286**	**223,495**

Figure 8
Residential Connections over 200 kbps in at Least One Direction 2010-2014
(In thousands)

	2010	*2011*		*2012*		*2013*		*2014*	
Technology	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun**	*Dec*
Total	149,441	171,773	186,516	196,665	215,817	235,273	246,797	**264,343**	**273,950**
Total Fixed	76,918	78,906	80,706	82,217	84,392	85,277	87,599	**87,360**	**89,196**
Mobile Wireless	72,523	92,867	105,810	114,448	131,425	149,996	159,197	**176,983**	**184,754**

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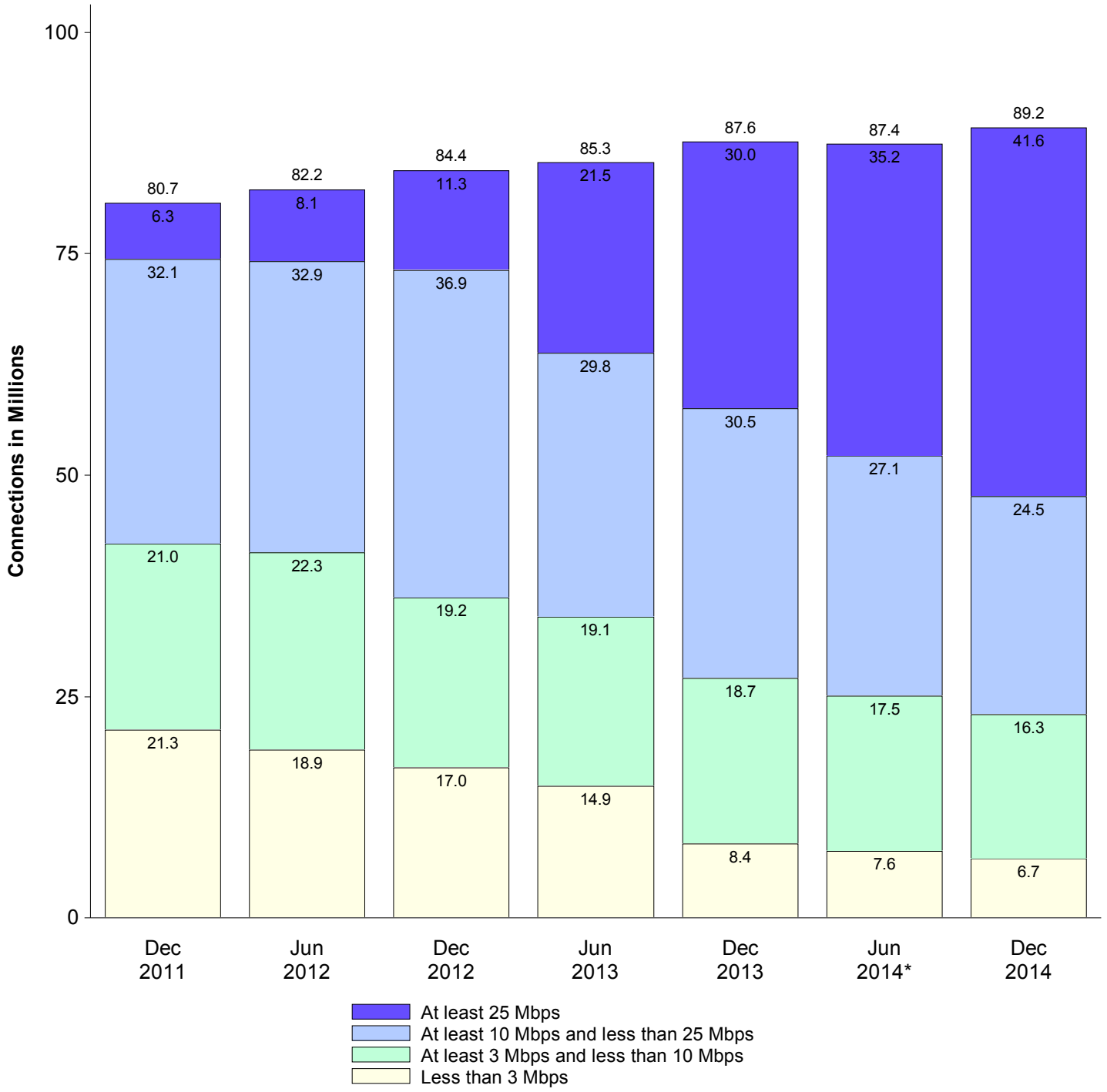
The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see pages 1-2). Some previously-published data may have been revised. Figures may not sum to totals elsewhere in this report due to rounding.

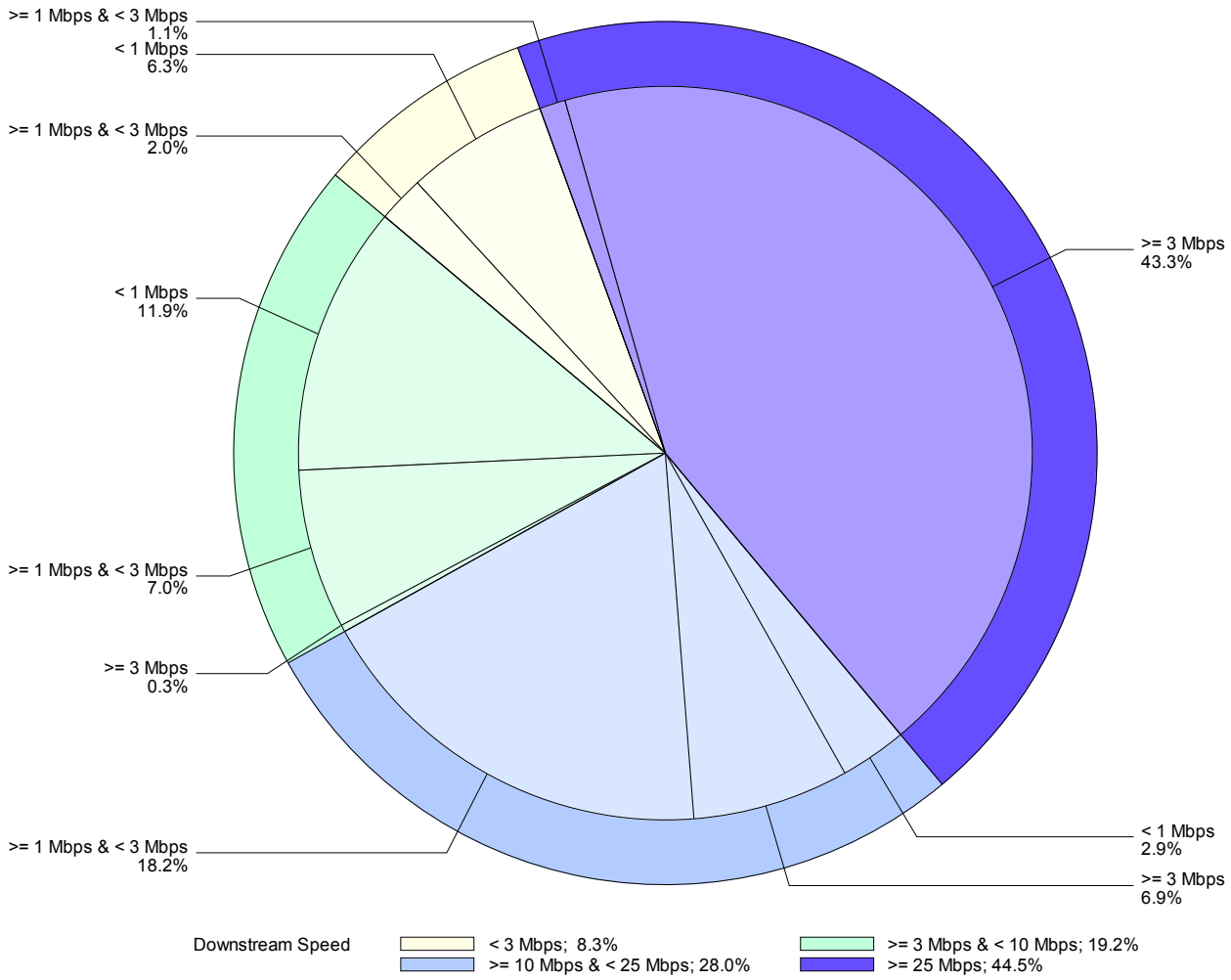
Figure 9
Residential Fixed Connections by Speed 2011-2014



* The June 2014 data have not been subjected to the typical quality checks.

The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see pages 1-2). Some previously-published data may have been revised. Figures may not sum to totals elsewhere in this report due to rounding.

Figure 10
Distribution of Fixed Connections over 200 kbps in at Least One Direction as of December 31, 2014



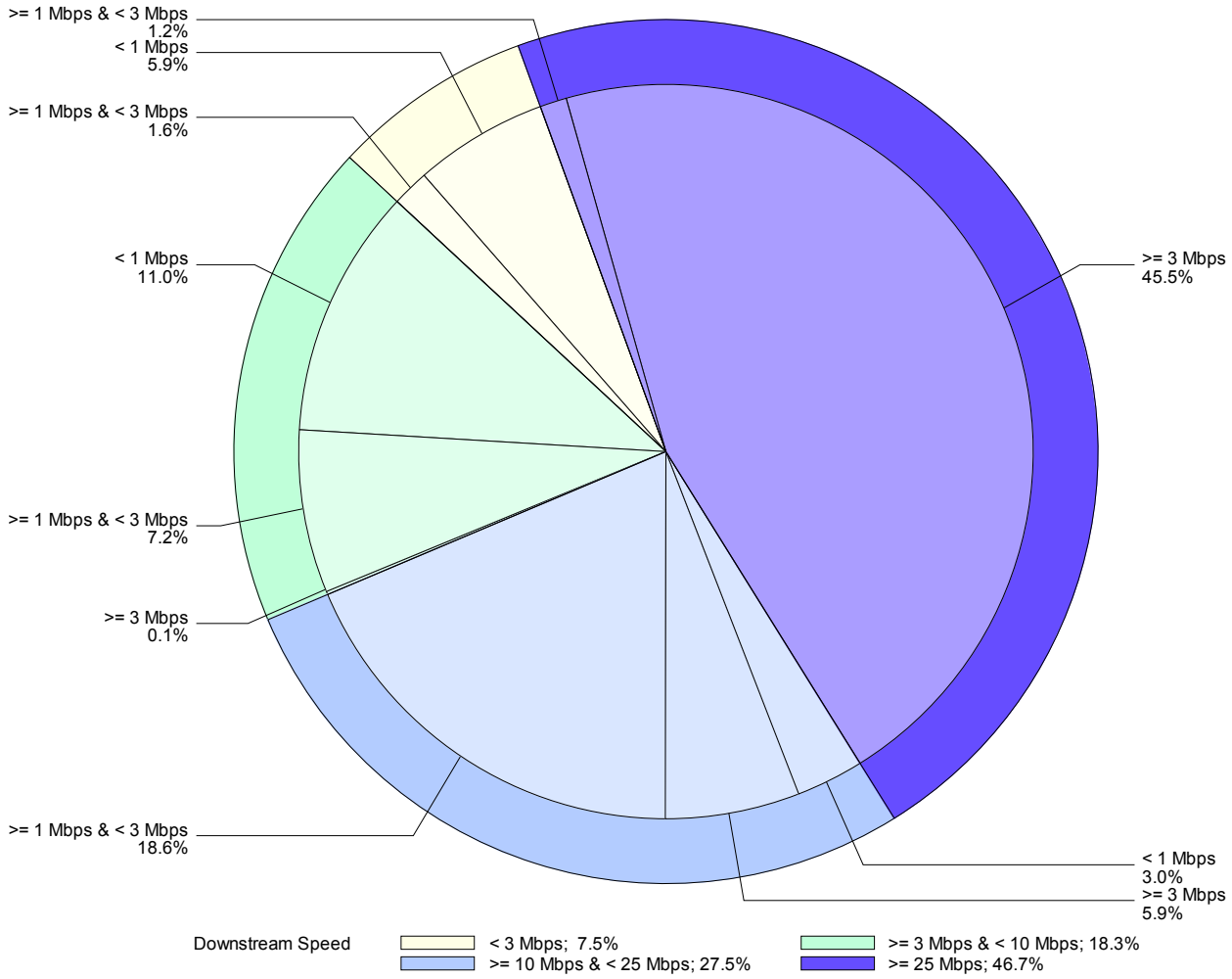
Note: Inner circle (light shading) represents upstream speeds.

Fixed Connections over 200 kbps in at Least One Direction (in thousands)

	Downstream Speed				
Upstream Speed	*Less than 3 Mbps*	*At least 3 Mbps and less than 10 Mbps*	*At least 10 Mbps and less than 25 Mbps*	*At least 25 Mbps*	*Total*
Less than 1 Mbps	6,121	11,631	2,877	2	20,631
At least 1 Mbps & Less than 3 Mbps	1,988	6,878	17,761	1,109	27,736
At least 3 Mbps	7	298	6,748	42,390	49,443
Total	8,116	18,806	27,386	43,502	97,810
	Percentages				
Less than 1 Mbps	6.3	11.9	2.9	0.0	21.1
At least 1 Mbps & Less than 3 Mbps	2.0	7.0	18.2	1.1	28.4
At least 3 Mbps	0.0	0.3	6.9	43.3	50.6
Total	8.3	19.2	28.0	44.5	100.0

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

Figure 11
Distribution of Residential Fixed Connections over 200 kbps in at Least One Direction as of December 31, 2014



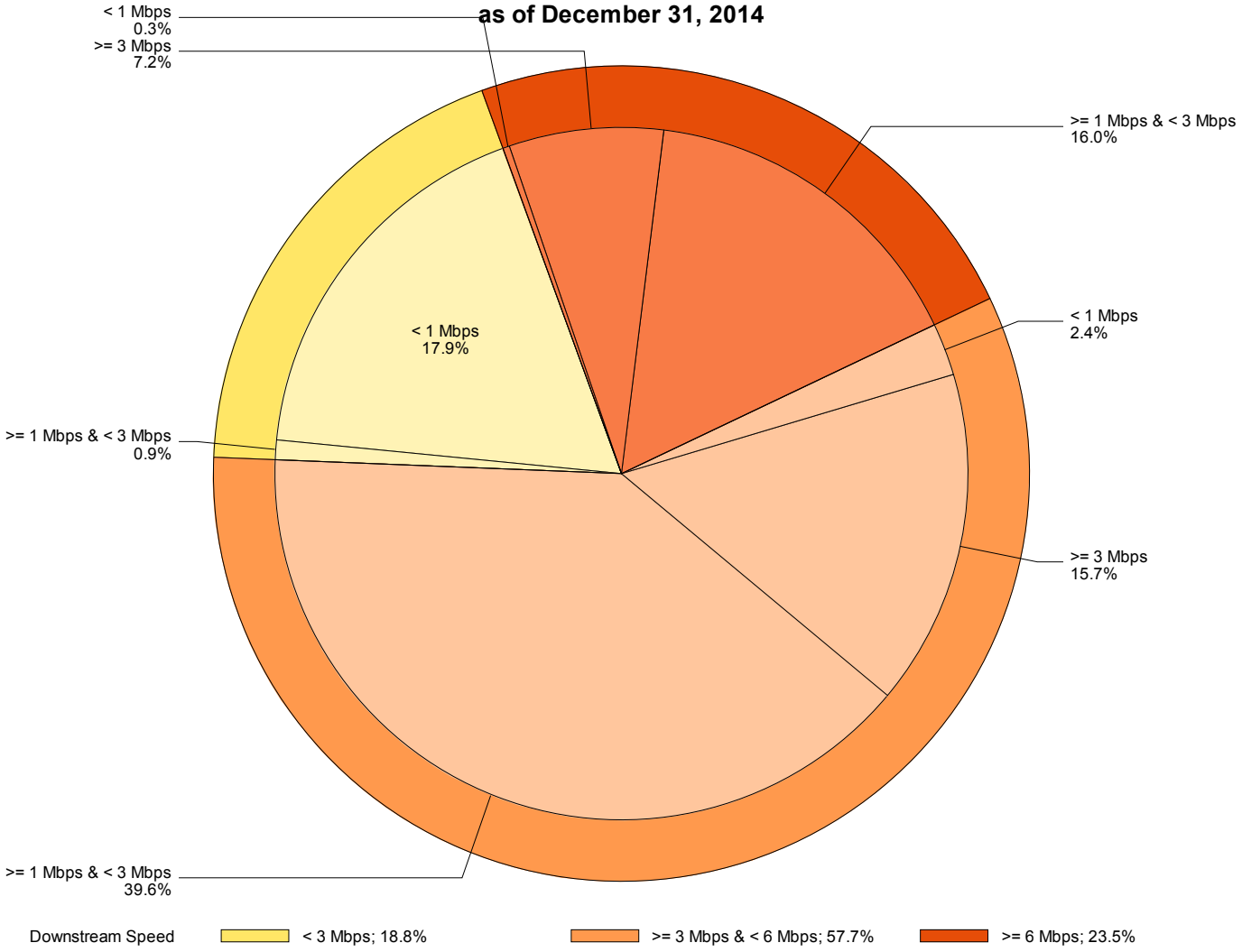
Note: Inner circle (light shading) represents upstream speeds.

Residential Fixed Connections over 200 kbps in at Least One Direction (in thousands)

	Downstream Speed				
Upstream Speed	*Less than 3 Mbps*	*At least 3 Mbps and less than 10 Mbps*	*At least 10 Mbps and less than 25 Mbps*	*At least 25 Mbps*	*Total*
Less than 1 Mbps	5,254	9,788	2,654	2	17,698
At least 1 Mbps & Less than 3 Mbps	1,450	6,399	16,600	1,048	25,497
At least 3 Mbps	6	122	5,279	40,595	46,002
Total	6,710	16,308	24,533	41,645	89,196
	Percentages				
Less than 1 Mbps	5.9	11.0	3.0	0.0	19.8
At least 1 Mbps & Less than 3 Mbps	1.6	7.2	18.6	1.2	28.6
At least 3 Mbps	0.0	0.1	5.9	45.5	51.6
Total	7.5	18.3	27.5	46.7	100.0

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

Figure 12
Distribution of Mobile Subscribers over 200 kbps in at Least One Direction as of December 31, 2014



Note: Inner circle (light shading) represents upstream speeds.

Mobile Subscribers over 200 kbps in at Least One Direction (in thousands)

	Downstream Speed			
Upstream Speed	*Less than 3 Mbps*	*At least 3 Mbps and less than 6 Mbps*	*At least 6 Mbps*	*Total*
Less than 1 Mbps	39,986	5,468	688	46,142
At least 1 Mbps & Less than 3 Mbps	2,040	88,446	35,709	126,195
At least 3 Mbps	1	35,067	16,090	51,158
Total	42,027	128,981	52,487	223,495
	Percentages			
Less than 1 Mbps	17.9	2.4	0.3	20.6
At least 1 Mbps & Less than 3 Mbps	0.9	39.6	16.0	56.5
At least 3 Mbps	0.0	15.7	7.2	22.9
Total	18.8	57.7	23.5	100.0

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

Figure 13
Connections over 200 kbps in at Least One Direction by Technology 2010-2014
(In thousands)

	2010	*2011*		*2012*		*2013*		*2014*	
Technology	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun**	*Dec*
Total	182,065	206,131	230,201	243,359	262,564	284,692	293,397	**311,284**	**321,305**
Total Fixed	84,521	86,575	88,317	89,945	92,511	93,986	96,032	**95,998**	**97,810**
aDSL	31,470	31,611	31,330	31,173	30,974	30,657	30,690	**29,873**	**28,527**
sDSL	167	159	148	139	132	117	108	**96**	**85**
Other Wireline[1]	795	778	795	770	796	769	772	**792**	**723**
Cable Modem	45,334	46,698	48,263	49,664	51,646	52,760	54,009	**54,011**	**56,301**
FTTP[2]	4,993	5,477	5,898	6,300	6,733	7,250	7,745	**8,326**	**9,180**
Satellite	1,176	1,204	1,190	1,217	1,454	1,623	1,849	**1,964**	**2,006**
Fixed Wireless	587	649	693	682	777	810	858	**935**	**988**
Mobile Wireless	97,544	119,556	141,883	153,414	170,053	190,706	197,365	**215,286**	**223,495**

[1] Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. No Power Line connections were reported after 2012. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.
[2] Fiber to the premises.
* The June 2014 data have not been subjected to the typical quality checks.

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Figure 14
Connections by Technology as of December 31, 2014

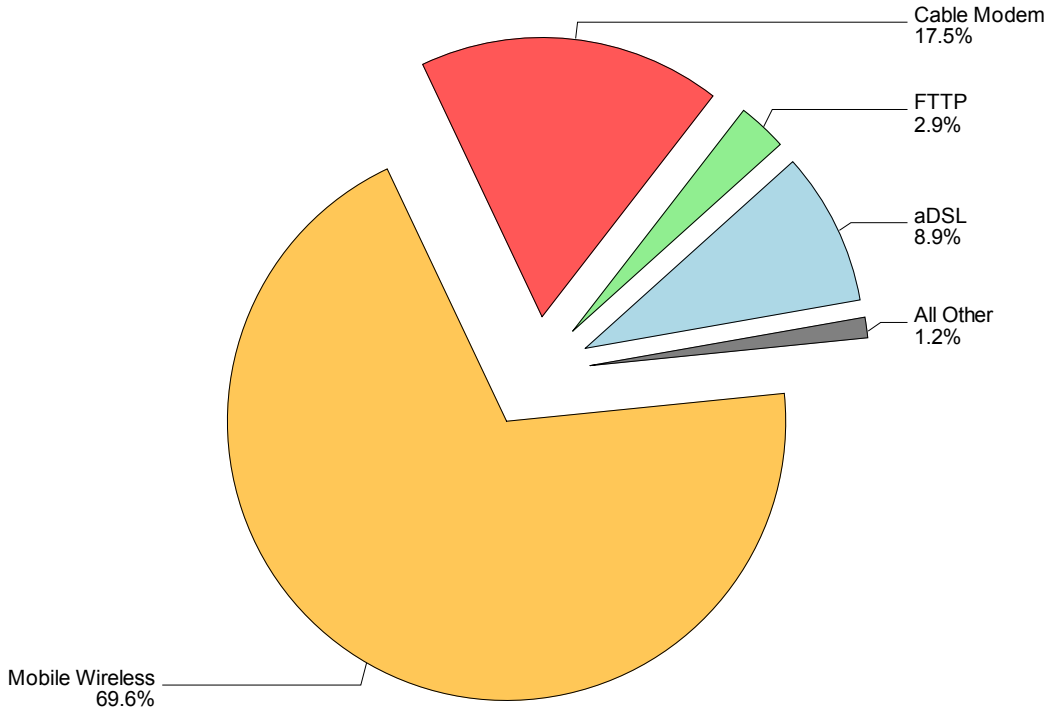

Figure 15
Residential Connections over 200 kbps in at Least One Direction by Technology 2010-2014
(In thousands)

	2010	*2011*		*2012*		*2013*		*2014*	
Technology	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun**	*Dec*
Total	149,441	171,773	186,516	196,665	215,817	235,273	246,797	**264,343**	**273,950**
Total Fixed	76,918	78,906	80,706	82,217	84,392	85,277	87,599	**87,360**	**89,196**
aDSL	27,467	27,754	27,758	27,632	27,391	26,869	27,248	**26,678**	**25,603**
sDSL	53	52	54	49	50	43	39	**30**	**22**
Other Wireline[1]	76	45	40	14	34	22	22	**57**	**59**
Cable Modem	43,295	44,480	45,832	47,033	48,716	49,494	50,709	**50,389**	**52,467**
FTTP[2]	4,704	5,118	5,521	5,892	6,270	6,732	7,176	**7,617**	**8,368**
Satellite	811	885	886	998	1,242	1,407	1,643	**1,760**	**1,803**
Fixed Wireless	513	572	616	600	689	710	763	**829**	**874**
Mobile Wireless	72,523	92,867	105,810	114,448	131,425	149,996	159,197	**176,983**	**184,754**

[1] Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. No Power Line connections were reported after 2012. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.
[2] Fiber to the premises.
* The June 2014 data have not been subjected to the typical quality checks.

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Figure 16
Residential Connections by Technology as of December 31, 2014

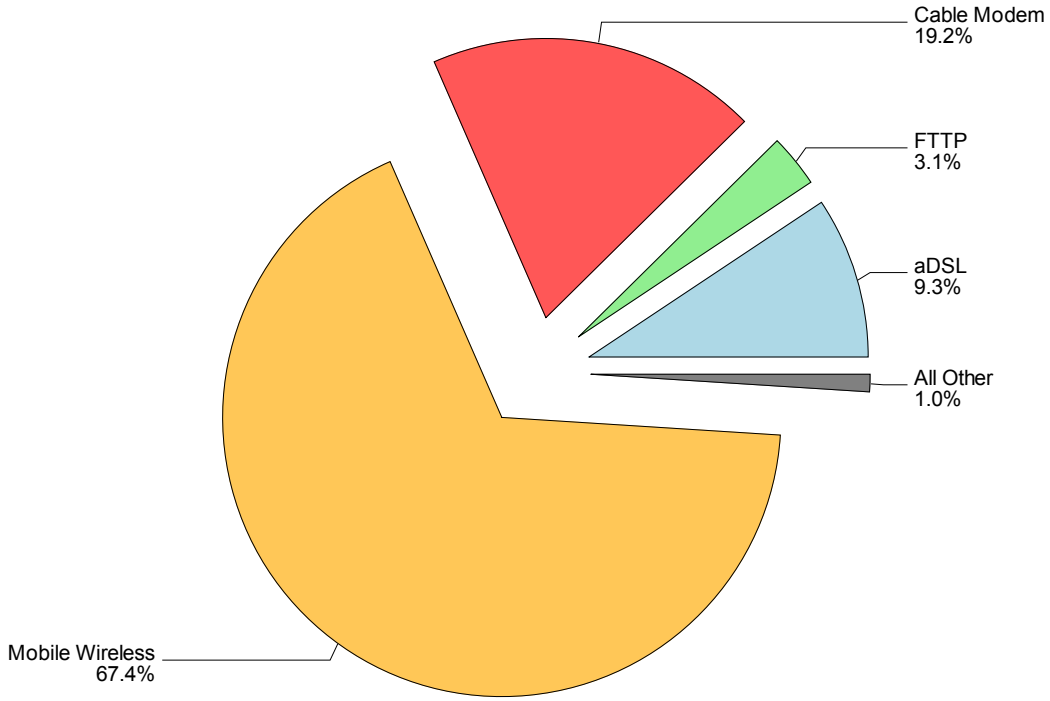

Figure 17
Fixed Connections at Least 3 Mbps Downstream and 768 kbps Upstream by Technology 2010-2014
(In thousands)

	2010	*2011*		*2012*		*2013*		*2014*	
Technology	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun**	*Dec*
Total	44,694	48,577	51,097	57,243	64,657	68,673	78,175	**78,981**	**83,872**
aDSL	7,302	8,909	10,351	12,875	13,108	14,233	18,540	**17,246**	**18,557**
sDSL	14	16	26	30	33	34	36	**33**	**28**
Other Wireline[1]	211	204	228	239	276	284	308	**310**	**308**
Cable Modem	32,338	34,113	34,699	37,798	44,133	46,014	50,236	**51,304**	**53,853**
FTTP[2]	4,725	5,188	5,606	6,001	6,430	6,981	7,486	**8,111**	**8,974**
Satellite	#	#	#	87	394	791	1,181	**1,424**	**1,558**
Fixed Wireless	105	145	186	214	284	337	388	**553**	**594**

[1] Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. No Power Line connections were reported after 2012. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.
[2] Fiber to the premises.
* The June 2014 data have not been subjected to the typical quality checks.
# = Rounds to zero.

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Figure 18
Fixed Connections at Least 3 Mbps Downstream and 768 kbps Upstream by Technology as of December 31, 2014

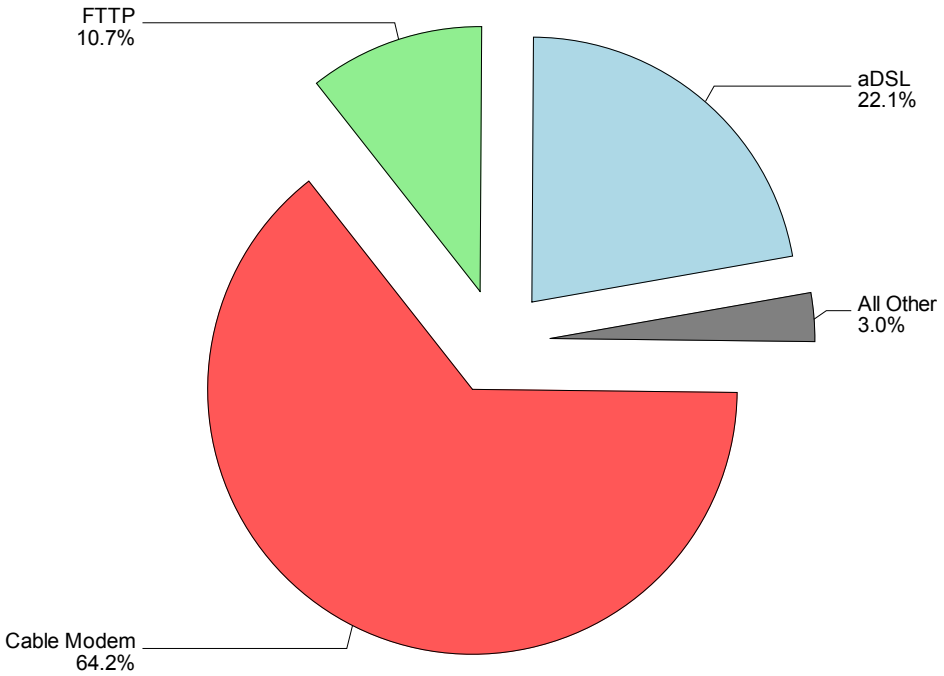

Figure 19
Residential Fixed Connections at Least 3 Mbps Downstream and 768 kbps Upstream by Technology 2010-2014
(In thousands)

	2010	*2011*		*2012*		*2013*		*2014*	
Technology	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun**	*Dec*
Total	41,769	45,263	47,427	53,070	59,914	63,342	72,476	**73,042**	**77,540**
aDSL	6,421	7,909	9,274	11,563	11,669	12,666	16,715	**15,673**	**16,867**
sDSL	2	4	12	12	13	13	13	**7**	**2**
Other Wireline[1]	36	15	16	7	20	21	20	**45**	**50**
Cable Modem	30,742	32,321	32,693	35,583	41,561	43,061	47,258	**47,924**	**50,308**
FTTP[2]	4,482	4,894	5,271	5,632	6,012	6,504	6,958	**7,491**	**8,246**
Satellite	0	0	#	86	393	788	1,177	**1,419**	**1,552**
Fixed Wireless	86	121	161	185	245	289	335	**483**	**516**

[1] Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. No Power Line connections were reported after 2012. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.
[2] Fiber to the premises.
* The June 2014 data have not been subjected to the typical quality checks.
# = Rounds to zero.

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Figure 20
Residential Fixed Connections at Least 3 Mbps Downstream and 768 kbps Upstream by Technology as of December 31, 2014

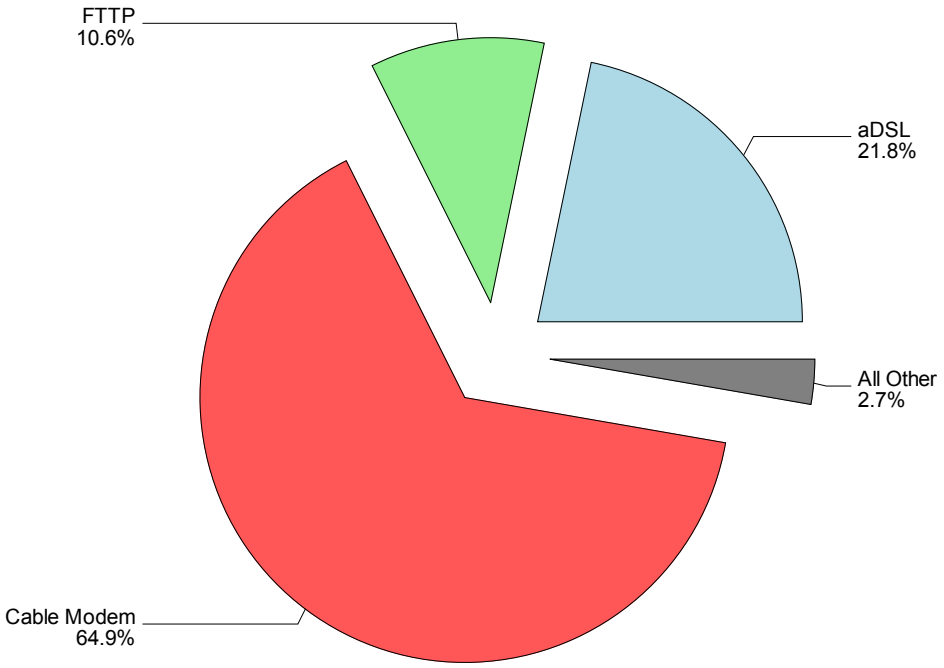

Figure 21
Fixed Connections at Least 10 Mbps Downstream and 1 Mbps Upstream by Technology in 2014
(In thousands)

	2014	
Technology	*Jun**	*Dec*
Total	**63,849**	**68,009**
aDSL	**7,573**	**8,310**
sDSL	**9**	**6**
Other Wireline[1]	**169**	**183**
Cable Modem	**47,296**	**49,839**
FTTP[2]	**7,615**	**8,341**
Satellite	**1,016**	**1,137**
Fixed Wireless	**170**	**192**

[1] Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.
[2] Fiber to the premises.
* The June 2014 data have not been subjected to the typical quality checks.
# = Rounds to zero.

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Figures may not sum to totals due to rounding.

Figure 22
Fixed Connections at Least 10 Mbps Downstream and 1 Mbps Upstream by Technology as of December 31, 2014

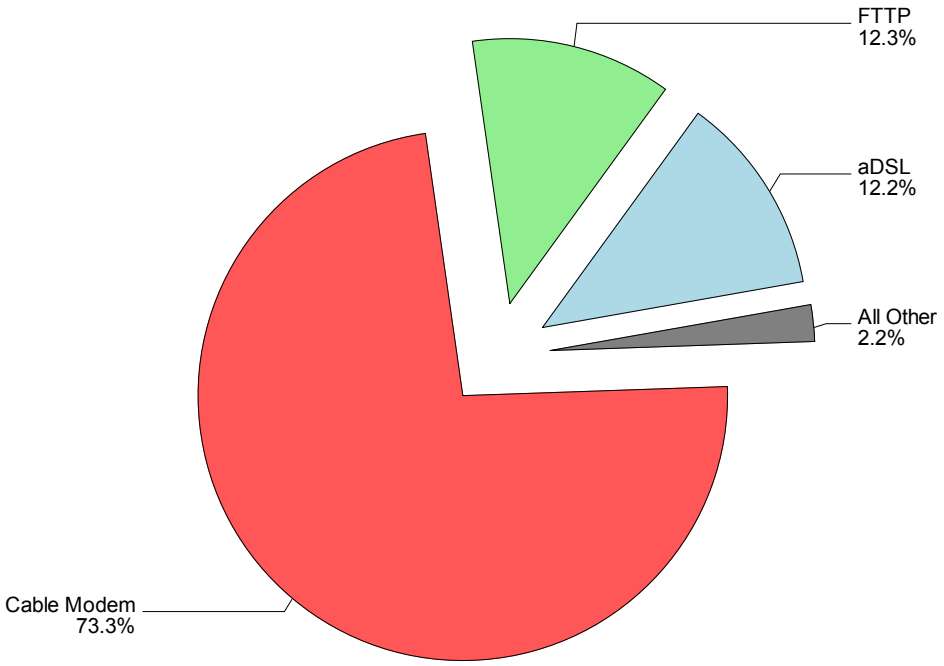

Figure 23
Residential Fixed Connections at Least 10 Mbps Downstream and 1 Mbps Upstream by Technology in 2014
(In thousands)

	2014	
Technology	*Jun**	*Dec*
Total	**59,751**	**63,522**
aDSL	**7,035**	**7,741**
sDSL	**3**	**#**
Other Wireline[1]	**33**	**36**
Cable Modem	**44,480**	**46,767**
FTTP[2]	**7,044**	**7,679**
Satellite	**1,014**	**1,133**
Fixed Wireless	**142**	**166**

[1] Power Line and Other are summarized with Other Wireline to maintain firm confidentiality. See Technical Notes at the end of the report for a description of Form 477 technology categories and other reporting requirements.
[2] Fiber to the premises.
* The June 2014 data have not been subjected to the typical quality checks.
# = Rounds to zero.

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Figures may not sum to totals due to rounding.

Figure 24
Residential Fixed Connections at Least 10 Mbps Downstream and 1 Mbps Upstream by Technology as of December 31, 2014

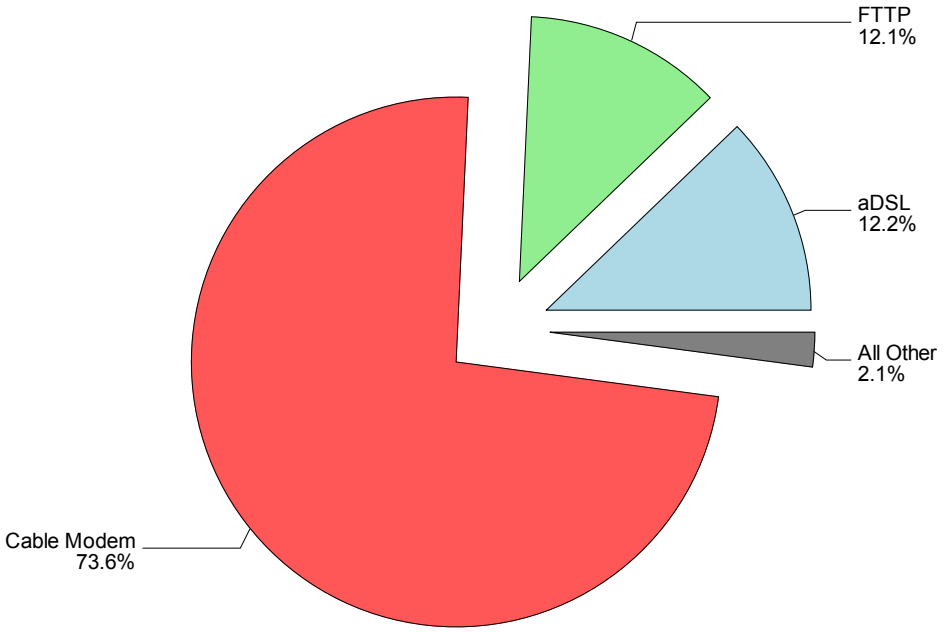
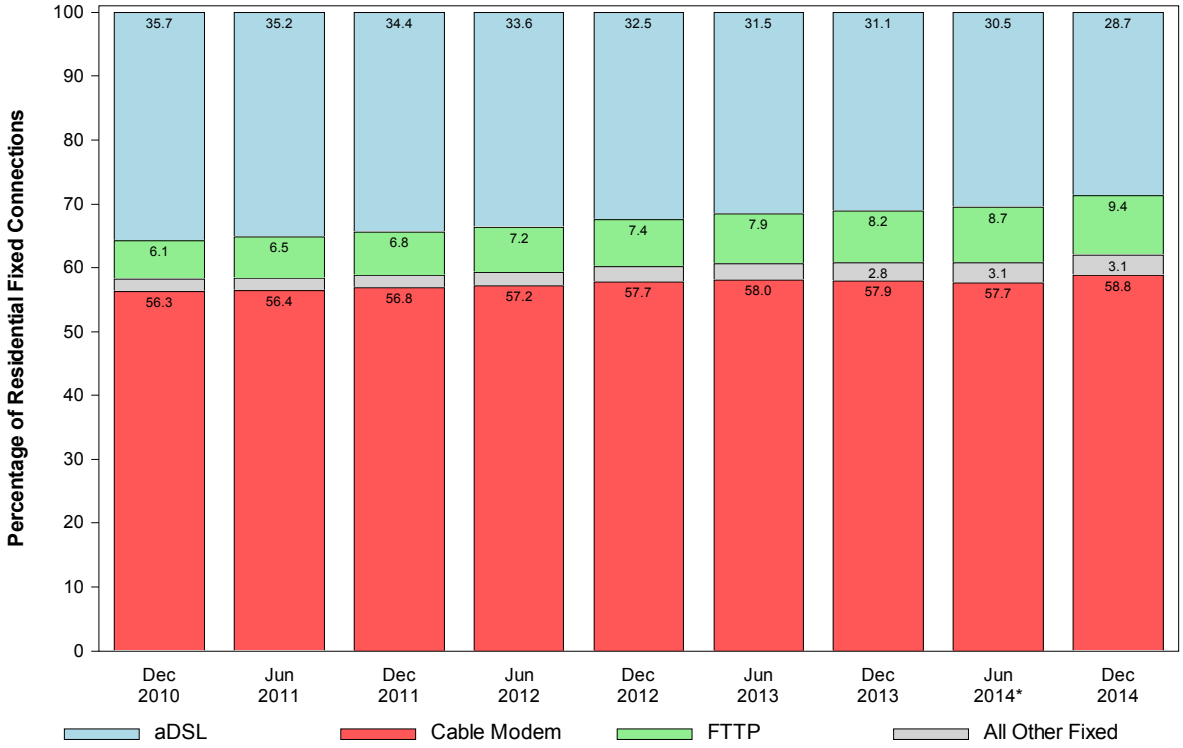


Figure 25
Residential Fixed Connections over 200 kbps in at Least One Direction 2010-2014
(Shares of selected technologies)



* The June 2014 data have not been subjected to the typical quality checks.

The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see pages 1-2). Some previously-published data may have been revised. Figures may not sum to totals due to rounding.

Figure 26
Residential Fixed Connections over 200 kbps in at Least One Direction 2010-2014
(Net adds for selected technologies)

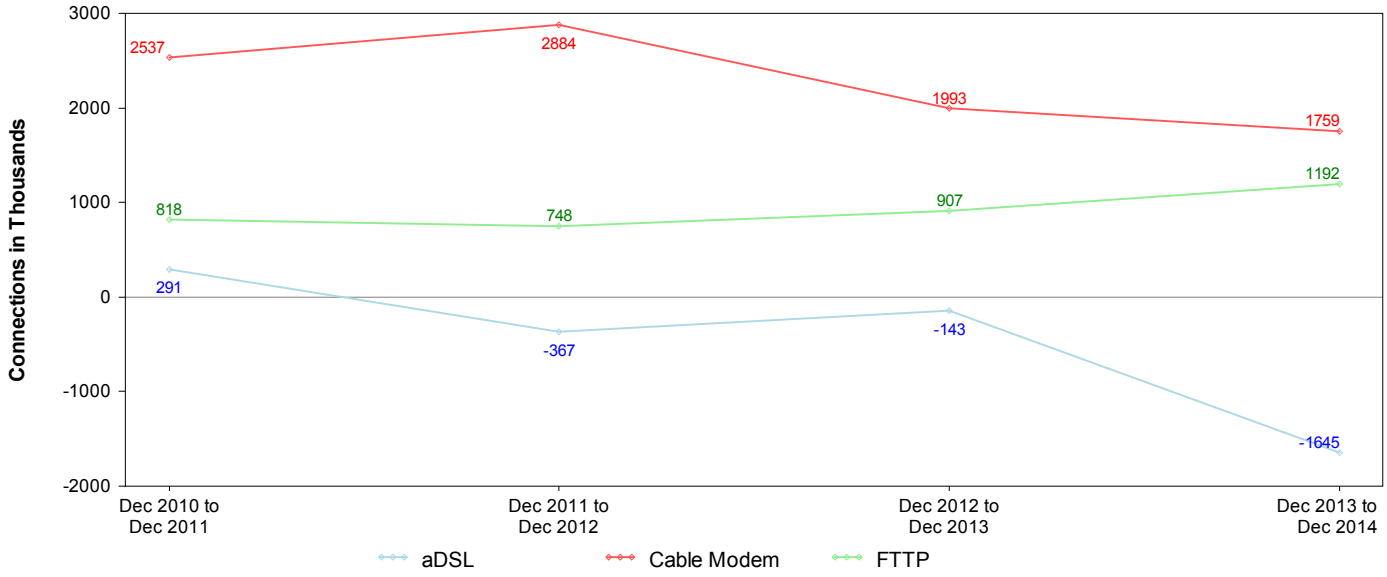


Figure 27
Residential Fixed Connections by Technology as of December 31, 2014
(Shares of selected technologies for selected speeds, connections in thousands)

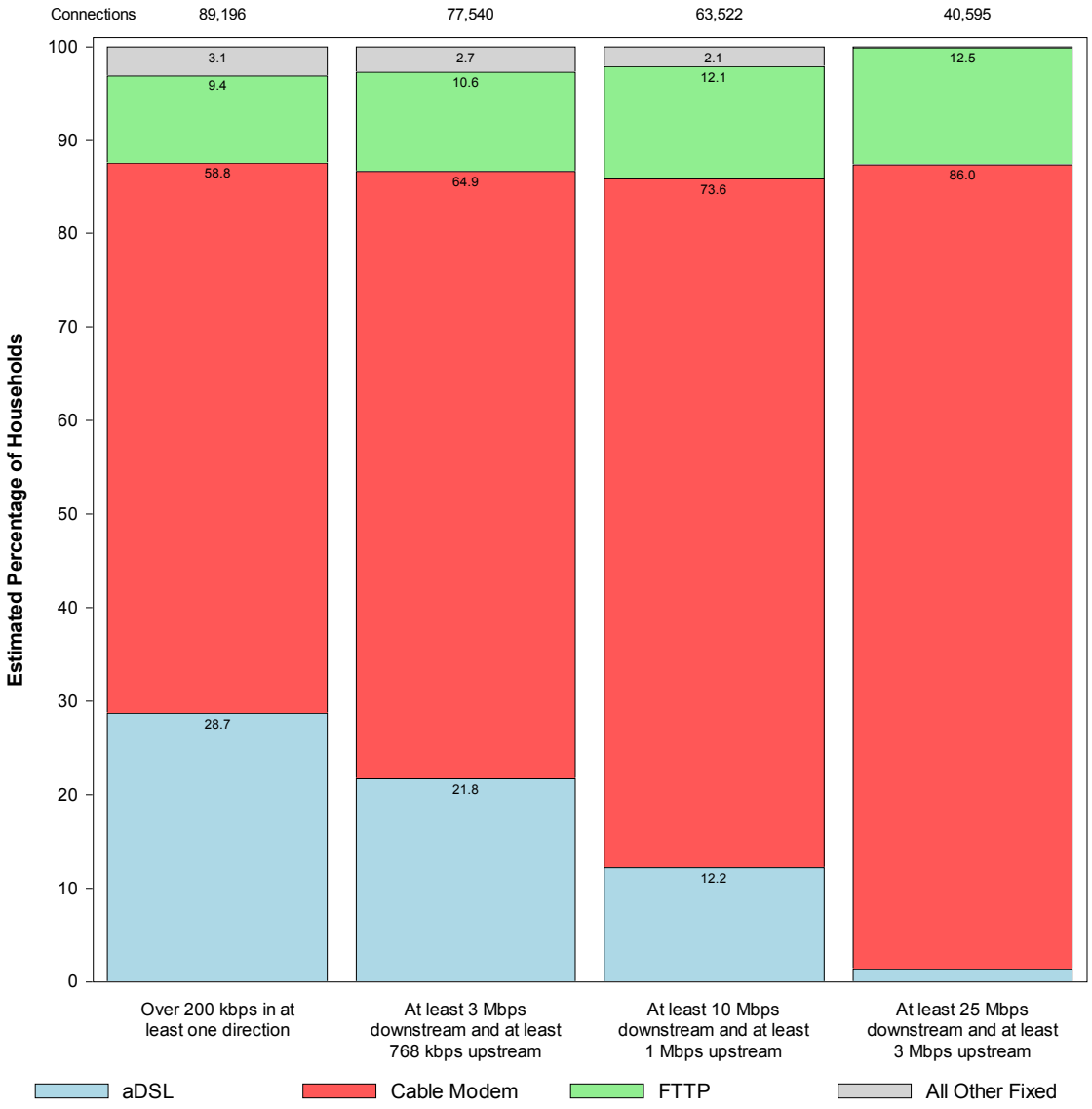


Figure 28
Fixed Connections by Downstream Speed Tier and Technology as of December 31, 2014
(In thousands)

	Downstream Speed						
Technology	*Less than 1.5 Mbps*	*At least 1.5 Mbps and less than 3 Mbps*	*At least 3 Mbps and less than 10 Mbps*	*At least 10 Mbps and less than 25 Mbps*	*At least 25 Mbps and less than 100 Mbps*	*At least 100 Mbps*	*Total*
aDSL	2,027	3,211	12,401	10,215	665	8	28,527
sDSL	37	20	21	5	*	*	85
Other Wireline	56	354	130	58	28	98	723
Cable Modem	547	946	4,775	12,947	28,079	9,008	56,301
FTTP	62	95	577	2,860	5,196	390	9,180
Satellite	354	60	455	1,136	*	*	2,006
Fixed Wireless	158	189	447	165	19	9	988
Total	3,240	4,876	18,806	27,386	33,988	9,514	97,810
	Percentages						
aDSL	2.1	3.3	12.7	10.4	0.7	0.0	29.2
sDSL	0.0	0.0	0.0	0.0	*	*	0.1
Other Wireline	0.1	0.4	0.1	0.1	0.0	0.1	0.7
Cable Modem	0.6	1.0	4.9	13.2	28.7	9.2	57.6
FTTP	0.1	0.1	0.6	2.9	5.3	0.4	9.4
Satellite	0.4	0.1	0.5	1.2	*	*	2.1
Fixed Wireless	0.2	0.2	0.5	0.2	0.0	0.0	1.0
Total	3.3	5.0	19.2	28.0	34.7	9.7	100.0

= Rounds to Zero.
* = Data withheld to maintain firm confidentiality.
Note: Figures may not sum to totals due to rounding.
Source: FCC Form 477.

Figure 29
Residential Fixed Connections by Downstream Speed Tier and Technology as of December 31, 2014
(In thousands)

	Downstream Speed						
Technology	*Less than 1.5 Mbps*	*At least 1.5 Mbps and less than 3 Mbps*	*At least 3 Mbps and less than 10 Mbps*	*At least 10 Mbps and less than 25 Mbps*	*At least 25 Mbps and less than 100 Mbps*	*At least 100 Mbps*	*Total*
aDSL	1,912	2,774	10,762	9,527	622	6	25,603
sDSL	17	3	1	#	*	*	22
Other Wireline	2	3	18	11	8	18	59
Cable Modem	532	854	4,177	11,041	27,010	8,854	52,467
FTTP	28	49	508	2,676	4,852	255	8,368
Satellite	187	34	450	1,133	*	*	1,803
Fixed Wireless	141	173	392	146	17	6	874
Total	2,820	3,890	16,308	24,533	32,508	9,137	89,196
	Percentages						
aDSL	2.1	3.1	12.1	10.7	0.7	0.0	28.7
sDSL	0.0	0.0	0.0	0.0	*	*	0.0
Other Wireline	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Cable Modem	0.6	1.0	4.7	12.4	30.3	9.9	58.8
FTTP	0.0	0.1	0.6	3.0	5.4	0.3	9.4
Satellite	0.2	0.0	0.5	1.3	*	*	2.0
Fixed Wireless	0.2	0.2	0.4	0.2	0.0	0.0	1.0
Total	3.2	4.4	18.3	27.5	36.4	10.2	100.0

= Rounds to Zero.
* = Data withheld to maintain firm confidentiality.
Note: Figures may not sum to totals due to rounding.
Source: FCC Form 477.

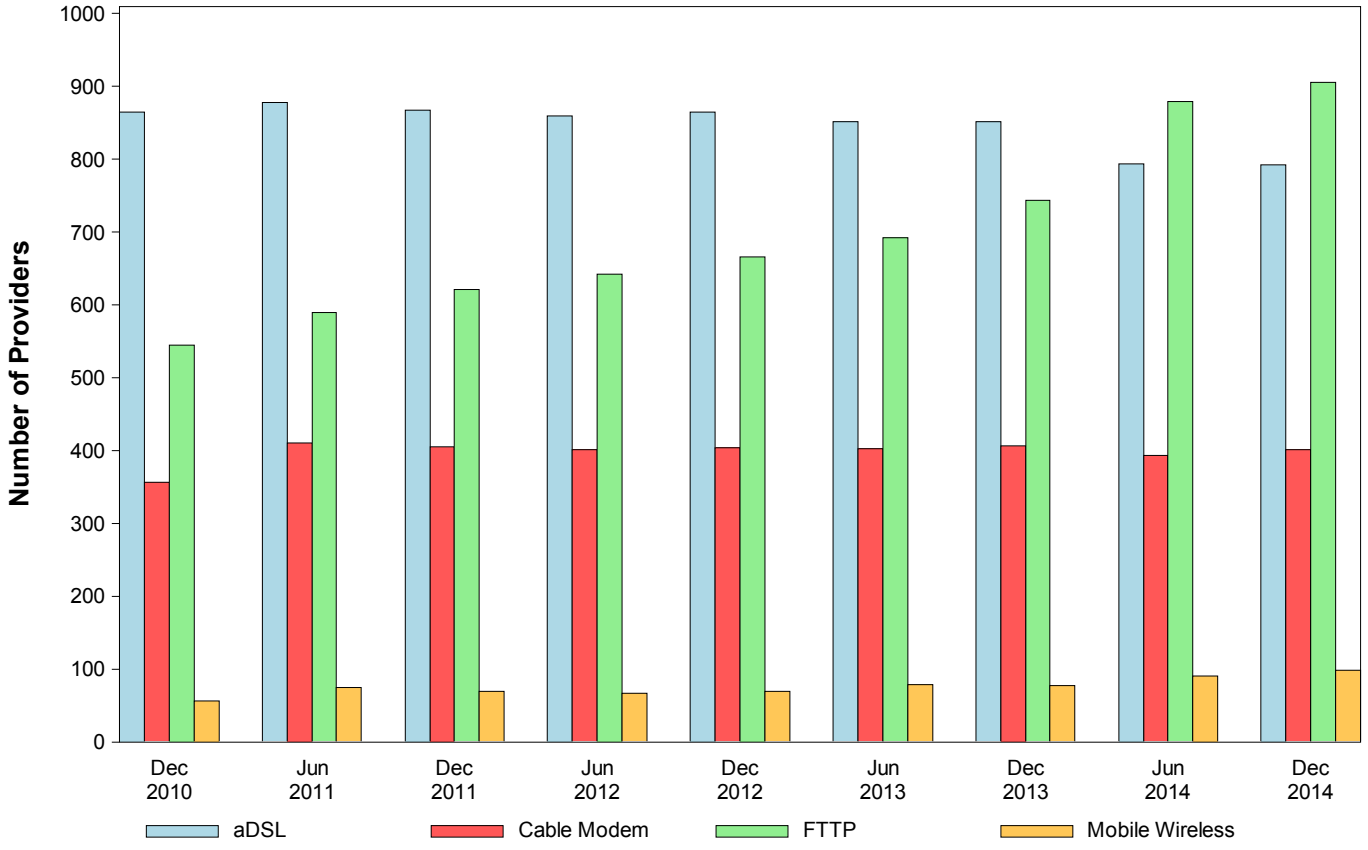
Figure 30
Nationwide Number of Providers of Connections over 200 kbps in at Least One Direction by Technology 2010-2014

	2010	*2011*		*2012*		*2013*		*2014*	
Technology	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun+*	*Dec*
aDSL	865	867	867	860	865	852	851	**794**	**792**
sDSL	247	252	255	251	255	246	239	**195**	**191**
Other Wireline	270	265	274	258	262	246	245	**241**	**238**
Cable Modem	357	400	405	401	404	403	407	**394**	**402**
FTTP	545	579	621	642	666	692	744	**879**	**906**
Satellite	4	5	6	5	6	5	5	**18**	**16**
Fixed Wireless	646	672	713	713	765	771	825	**871**	**916**
Mobile Wireless	57	64	69	67	70	79	77	**91**	**98**
Power Line and Other	7	4	5	*	*	0	*	**34**	**11**
Total	1,566	1,624	1,687	1,673	1,722	1,714	1,773	**1,793**	**1,845**

Multiple Form 477 filers within a holding company structure count as one provider. * = 1-3 providers.
+ The June 2014 data have not been subjected to the typical quality checks.

The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see pages 1-2). Some previously-published data may have been revised.

Figure 31
Nationwide Number of Providers of Connections over 200 kbps in at Least One Direction Selected Technologies 2010-2014



SECTION 3
SUMMARY STATISTICS: THE STATES

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Figure 32
Residential Fixed Connections and Households by State as of December 31, 2014
(Connections and households, in thousands)

		At least 3 Mbps Down and 0.768 kbps Up		*At least 10 Mbps Down and 1 Mbps Up*		*At least 25 Mbps Down and 3 Mbps Up*	
State	*Households*	*Connections*	*Subscribership Ratio*	*Connections*	*Subscribership Ratio*	*Connections*	*Subscribership Ratio*
Alabama	1,842	938	0.51	767	0.42	393	0.21
Alaska	252	149	0.59	119	0.47	6	0.02
American Samoa	10	0	0.00	0	0.00	0	0.00
Arizona	2,387	1,693	0.71	1,080	0.45	1,008	0.42
Arkansas	1,132	524	0.46	374	0.33	208	0.18
California	12,617	9,338	0.74	7,793	0.62	5,323	0.42
Colorado	1,998	1,541	0.77	1,040	0.52	979	0.49
Connecticut	1,356	985	0.73	885	0.65	587	0.43
Delaware	339	286	0.84	265	0.78	*	*
District of Columbia	267	205	0.77	176	0.66	*	*
Florida	7,218	5,651	0.78	4,776	0.66	2,681	0.37
Georgia	3,541	2,188	0.62	1,754	0.50	1,195	0.34
Guam	42	*	*	*	*	*	*
Hawaii	450	364	0.81	289	0.64	*	*
Idaho	585	331	0.57	181	0.31	128	0.22
Illinois	4,779	3,042	0.64	2,538	0.53	1,773	0.37
Indiana	2,492	1,376	0.55	1,119	0.45	635	0.25
Iowa	1,232	669	0.54	426	0.35	61	0.05
Kansas	1,112	659	0.59	486	0.44	249	0.22
Kentucky	1,702	863	0.51	643	0.38	125	0.07
Louisiana	1,719	899	0.52	725	0.42	515	0.30
Maine	553	370	0.67	265	0.48	65	0.12
Maryland	2,156	1,680	0.78	1,526	0.71	1,255	0.58
Massachusetts	2,538	2,099	0.83	1,903	0.75	1,717	0.68
Michigan	3,828	2,362	0.62	2,029	0.53	1,347	0.35
Minnesota	2,115	1,312	0.62	961	0.45	791	0.37
Mississippi	1,093	415	0.38	342	0.31	198	0.18
Missouri	2,361	1,320	0.56	1,025	0.43	522	0.22
Montana	408	224	0.55	151	0.37	*	*
Nebraska	731	460	0.63	297	0.41	211	0.29
Nevada	1,006	686	0.68	472	0.47	*	*
New Hampshire	520	412	0.79	347	0.67	276	0.53
New Jersey	3,188	2,703	0.85	2,523	0.79	1,845	0.58
New Mexico	765	419	0.55	224	0.29	199	0.26
New York	7,256	5,571	0.77	5,183	0.71	2,823	0.39
North Carolina	3,743	2,192	0.59	1,764	0.47	605	0.16
North Dakota	293	204	0.70	164	0.56	112	0.38
Northern Mariana Isl	16	*	*	0	0.00	0	0.00
Ohio	4,570	2,577	0.56	2,109	0.46	464	0.10
Oklahoma	1,450	764	0.53	557	0.38	375	0.26
Oregon	1,523	970	0.64	746	0.49	691	0.45
Pennsylvania	4,958	3,284	0.66	2,617	0.53	2,211	0.45
Puerto Rico	1,241	248	0.20	*	*	1	0.00
Rhode Island	410	319	0.78	284	0.69	*	*
South Carolina	1,796	1,035	0.58	880	0.49	359	0.20
South Dakota	327	218	0.67	160	0.49	120	0.37
Tennessee	2,487	1,413	0.57	1,208	0.49	909	0.37
Texas	9,014	5,790	0.64	4,784	0.53	2,178	0.24
Utah	896	660	0.74	424	0.47	364	0.41
Vermont	257	192	0.75	135	0.53	109	0.42
Virgin Islands	43	5	0.12	*	*	*	*
Virginia	3,042	2,195	0.72	1,843	0.61	1,519	0.50
Washington	2,645	1,883	0.71	1,501	0.57	1,401	0.53
West Virginia	742	338	0.46	296	0.40	252	0.34
Wisconsin	2,293	1,350	0.59	1,108	0.48	484	0.21
Wyoming	226	130	0.58	100	0.44	85	0.38
Total	117,564	77,540	0.66	63,522	0.54	40,595	0.35

= Rounds to Zero; * = Data withheld to maintain firm confidentiality.
Note: Figures may not sum to totals due to rounding.
Sources: FCC Form 477 (Connections); 2010-2014 ACS 5-year estimates; Census 2010.

Figure 33
Connections by Type of End User by State as of December 31, 2014
(Connections over 200 kbps in at least one direction, in thousands)

	Connections		*Percentages*		
State	*Residential*	*Business*	*Residential*	*Business*	*Total*
Alabama	3,940	508	88.6	11.4	4,448
Alaska	676	99	87.2	12.8	775
American Samoa	*	*	*	*	*
Arizona	5,357	862	86.1	13.9	6,218
Arkansas	2,453	333	88.0	12.0	2,787
California	34,828	5,966	85.4	14.6	40,794
Colorado	4,815	835	85.2	14.8	5,650
Connecticut	3,309	596	84.7	15.3	3,905
Delaware	862	142	85.8	14.2	1,004
District of Columbia	744	428	63.5	36.5	1,172
Florida	16,464	2,866	85.2	14.8	19,330
Georgia	8,165	1,383	85.5	14.5	9,548
Guam	98	25	79.9	20.1	122
Hawaii	1,310	180	87.9	12.1	1,490
Idaho	1,308	214	85.9	14.1	1,522
Illinois	11,150	2,000	84.8	15.2	13,151
Indiana	5,397	770	87.5	12.5	6,166
Iowa	2,599	426	85.9	14.1	3,024
Kansas	2,316	438	84.1	15.9	2,754
Kentucky	3,966	535	88.1	11.9	4,501
Louisiana	4,160	569	88.0	12.0	4,729
Maine	1,091	174	86.3	13.7	1,265
Maryland	5,329	952	84.8	15.2	6,281
Massachusetts	6,144	1,138	84.4	15.6	7,283
Michigan	7,855	1,584	83.2	16.8	9,438
Minnesota	4,573	882	83.8	16.2	5,456
Mississippi	2,422	256	90.4	9.6	2,678
Missouri	5,009	915	84.6	15.4	5,924
Montana	850	117	87.9	12.1	966
Nebraska	1,515	308	83.1	16.9	1,823
Nevada	2,393	357	87.0	13.0	2,750
New Hampshire	1,189	189	86.3	13.7	1,378
New Jersey	8,491	1,585	84.3	15.7	10,076
New Mexico	1,600	233	87.3	12.7	1,832
New York	17,388	3,224	84.4	15.6	20,613
North Carolina	7,971	1,358	85.4	14.6	9,329
North Dakota	671	121	84.7	15.3	793
Northern Mariana Isl	*	*	*	*	*
Ohio	9,730	1,680	85.3	14.7	11,410
Oklahoma	3,270	506	86.6	13.4	3,776
Oregon	3,396	578	85.4	14.6	3,974
Pennsylvania	10,842	1,835	85.5	14.5	12,676
Puerto Rico	2,587	193	93.1	6.9	2,780
Rhode Island	904	156	85.3	14.7	1,061
South Carolina	3,741	531	87.6	12.4	4,272
South Dakota	700	91	88.5	11.5	791
Tennessee	5,382	859	86.2	13.8	6,240
Texas	21,972	4,210	83.9	16.1	26,182
Utah	2,282	426	84.3	15.7	2,707
Vermont	547	91	85.8	14.2	638
Virgin Islands	89	18	83.2	16.8	107
Virginia	7,112	1,381	83.7	16.3	8,493
Washington	6,306	1,131	84.8	15.2	7,437
West Virginia	1,439	179	88.9	11.1	1,618
Wisconsin	4,697	840	84.8	15.2	5,537
Wyoming	500	74	87.1	12.9	574
Total	273,950	47,355	85.3	14.7	321,305

= Rounds to Zero.
* = Data withheld to maintain firm confidentiality.
Figures may not sum to totals due to rounding.
Source: FCC Form 477.

Figure 34
Connections by Technology by State as of December 31, 2014
(Connections over 200 kbps in at least one direction, in thousands)

State	*ADSL*	*SDSL*	*Other Wireline*	*Cable Modem*	*Fiber*	*Satellite*	*Fixed Wireless*	*Mobile Wireless*	*Total*
Alabama	524	4	*	682	20	*	4	3,142	4,448
Alaska	82	1	3	*	3	*	7	543	775
American Samoa	0	0	0	*	*	0	*	*	*
Arizona	658	#	*	1,302	34	*	32	4,148	6,218
Arkansas	344	#	*	337	13	*	6	2,034	2,787
California	3,996	10	*	6,217	914	*	53	29,356	40,794
Colorado	676	1	*	1,008	70	*	54	3,786	5,650
Connecticut	11	1	5	897	*	*	*	2,745	3,905
Delaware	*	#	3	188	*	*	0	682	1,004
District of Columbia	*	1	7	*	40	*	*	920	1,172
Florida	1,908	1	*	4,226	546	*	6	12,519	19,330
Georgia	1,157	2	*	1,552	71	*	1	6,673	9,548
Guam	*	0	0	*	*	0	0	77	122
Hawaii	*	*	1	*	15	4	*	1,081	1,490
Idaho	204	#	*	191	16	*	35	1,059	1,522
Illinois	1,291	3	*	2,353	50	*	64	9,309	13,151
Indiana	667	1	*	1,005	81	*	40	4,308	6,166
Iowa	358	1	*	436	96	*	32	2,069	3,024
Kansas	282	1	*	467	84	*	34	1,859	2,754
Kentucky	492	5	*	610	55	*	17	3,261	4,501
Louisiana	436	1	*	695	57	*	5	3,472	4,729
Maine	134	3	*	316	7	*	4	790	1,265
Maryland	*	1	15	944	*	*	2	4,372	6,281
Massachusetts	*	1	21	1,635	*	*	2	4,900	7,283
Michigan	864	5	*	1,922	13	*	43	6,475	9,438
Minnesota	581	5	*	960	78	*	25	3,763	5,456
Mississippi	310	*	3	283	5	*	1	2,022	2,678
Missouri	823	1	*	746	72	*	32	4,162	5,924
Montana	116	1	*	169	14	*	20	629	966
Nebraska	163	#	*	357	33	*	21	1,236	1,823

Figure 34 - Continued
Connections by Technology by State as of December 31, 2014
(Connections over 200 kbps in at least one direction, in thousands)

State	*ADSL*	*SDSL*	*Other Wireline*	*Cable Modem*	*Fiber*	*Satellite*	*Fixed Wireless*	*Mobile Wireless*	*Total*
Nevada	255	#	*	575	7	*	10	1,889	2,750
New Hampshire	90	#	8	379	19	*	*	878	1,378
New Jersey	274	1	28	1,924	*	*	#	6,990	10,076
New Mexico	292	#	*	229	12	*	19	1,260	1,832
New York	597	4	44	4,505	*	*	3	14,021	20,613
North Carolina	987	1	*	1,804	68	*	5	6,389	9,329
North Dakota	66	1	1	129	52	4	6	534	793
Northern Mariana Isl	*	0	0	*	0	0	0	*	*
Ohio	1,148	1	*	2,225	93	*	35	7,834	11,410
Oklahoma	390	#	*	526	25	*	36	2,731	3,776
Oregon	339	1	*	796	31	*	17	2,755	3,974
Pennsylvania	831	2	*	2,416	804	*	3	8,555	12,676
Puerto Rico	*	0	6	*	2	*	4	2,124	2,780
Rhode Island	*	#	2	*	*	*	*	699	1,061
South Carolina	470	1	*	789	60	*	2	2,902	4,272
South Dakota	62	*	#	151	37	*	13	523	791
Tennessee	569	6	*	1,038	121	*	6	4,416	6,240
Texas	2,903	3	*	3,307	610	*	133	18,934	26,182
Utah	294	#	*	391	61	*	56	1,894	2,707
Vermont	94	*	3	124	12	*	1	398	638
Virgin Islands	*	0	*	*	*	*	13	80	107
Virginia	400	1	*	1,307	775	*	10	5,891	8,493
Washington	553	1	*	1,598	63	*	20	5,140	7,437
West Virginia	*	*	1	351	8	*	2	1,093	1,618
Wisconsin	645	9	*	1,005	47	*	35	3,744	5,537
Wyoming	57	*	6	99	6	*	15	382	574
Total	28,527	85	723	56,301	9,180	2,006	988	223,495	321,305

= Rounds to Zero.
* = Data withheld to maintain firm confidentiality.
Figures may not sum to totals due to rounding.
Source: FCC Form 477.

Figure 35
Percentage of Fixed Connections by Downstream Speed by State as of December 31, 2014

		Over 200 kbps Upstream and		
State	*% over 200 kbps Downstream*	*% at least 3 Mbps Downstream*	*% at least 10 Mbps Downstream*	*% at least 25 Mbps Downstream*
Alabama	97.9	88.0	66.1	34.7
Alaska	94.3	78.4	54.4	3.3
American Samoa	*	*	*	*
Arizona	99.2	90.1	68.8	50.2
Arkansas	97.9	85.2	57.2	28.6
California	99.3	93.7	72.0	48.4
Colorado	99.7	91.3	76.0	54.6
Connecticut	99.9	96.9	81.9	53.2
Delaware	99.4	96.4	87.5	71.7
District of Columbia	99.3	93.7	77.9	70.0
Florida	99.1	93.7	79.0	48.9
Georgia	98.2	91.1	67.1	44.3
Guam	*	*	*	*
Hawaii	99.9	97.2	76.2	18.2
Idaho	98.8	87.9	58.3	29.6
Illinois	99.4	93.4	71.4	48.9
Indiana	98.9	90.8	66.3	37.5
Iowa	98.7	85.7	56.3	16.7
Kansas	99.3	87.7	59.8	29.5
Kentucky	97.5	85.5	56.5	11.2
Louisiana	98.2	87.2	63.0	42.5
Maine	97.8	88.0	60.2	14.6
Maryland	99.2	95.4	85.1	68.5
Massachusetts	99.4	96.1	85.9	75.4
Michigan	98.8	91.4	73.5	47.7
Minnesota	99.3	90.2	71.4	50.1
Mississippi	97.1	85.7	58.3	32.0
Missouri	98.5	88.6	66.9	32.6
Montana	98.6	80.1	55.9	44.6
Nebraska	99.4	88.8	59.3	37.4

Figure 35 - Continued
Percentage of Fixed Connections by Downstream Speed by State as of December 31, 2014

		Over 200 kbps Upstream and		
State	*% over 200 kbps Downstream*	*% at least 3 Mbps Downstream*	*% at least 10 Mbps Downstream*	*% at least 25 Mbps Downstream*
Nevada	99.6	92.4	69.8	51.4
New Hampshire	98.3	93.6	76.3	57.4
New Jersey	99.4	96.4	89.2	63.9
New Mexico	98.9	85.3	59.4	36.2
New York	99.0	95.1	85.4	46.1
North Carolina	98.9	89.1	69.6	21.8
North Dakota	99.7	93.7	73.6	49.7
Northern Mariana Isl	*	*	*	*
Ohio	99.3	88.4	64.9	13.5
Oklahoma	98.9	89.7	58.6	38.1
Oregon	99.2	90.5	74.3	59.4
Pennsylvania	99.1	92.2	72.4	57.1
Puerto Rico	99.9	64.3	32.7	3.2
Rhode Island	99.3	96.1	83.7	70.6
South Carolina	98.7	89.5	70.1	28.2
South Dakota	99.2	92.6	68.0	49.3
Tennessee	98.1	91.2	72.7	52.3
Texas	99.3	92.6	70.9	31.5
Utah	99.6	92.9	70.5	46.7
Vermont	97.1	89.6	61.9	47.2
Virgin Islands	99.9	48.1	*	*
Virginia	99.0	92.7	76.7	60.7
Washington	99.3	92.4	77.3	63.8
West Virginia	96.4	88.6	59.8	49.5
Wisconsin	98.2	88.2	69.2	28.6
Wyoming	98.9	84.1	64.4	47.4
Total	99.0	91.7	72.5	44.5

Figure 36
ADSL Connections by State 2010-2014
(Connections over 200 kbps in at least one direction, in thousands)

	2010	*2011*		*2012*		*2013*		*2014*	
State	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*
Alabama	523	536	538	546	546	536	527	**520**	**524**
Alaska	78	79	77	78	79	81	82	**82**	**82**
American Samoa	*	*	*	*	*	*	*	**0**	**0**
Arizona	552	557	589	597	620	623	649	**660**	**658**
Arkansas	330	337	343	344	345	344	350	**346**	**344**
California	4,538	4,471	4,416	4,370	4,285	4,194	4,205	**4,073**	**3,996**
Colorado	663	*	*	*	*	*	*	**696**	**676**
Connecticut	*	*	*	*	*	*	*	*	**11**
Delaware	*	*	*	*	*	*	*	*	*
District of Columbia	*	*	*	*	*	*	*	*	*
Florida	2,070	2,104	1,998	1,955	1,977	1,918	1,928	**1,884**	**1,908**
Georgia	1,413	1,435	1,282	1,291	1,300	1,273	1,223	**1,193**	**1,157**
Guam	*	*	*	*	*	*	*	*	*
Hawaii	*	*	*	*	*	*	*	*	*
Idaho	181	185	190	200	208	214	219	**221**	**204**
Illinois	1,577	1,576	1,549	1,519	1,504	1,477	1,470	**1,388**	**1,291**
Indiana	754	763	765	760	754	742	747	**721**	**667**
Iowa	376	381	388	392	394	387	386	**368**	**358**
Kansas	271	273	275	275	278	279	286	**280**	**282**
Kentucky	473	481	501	502	507	503	508	**508**	**492**
Louisiana	396	407	437	444	446	443	433	**435**	**436**
Maine	125	134	136	139	140	143	140	**142**	**134**
Maryland	350	*	*	*	*	*	*	*	*
Massachusetts	*	*	*	*	*	*	*	*	*
Michigan	902	922	906	909	907	906	904	**902**	**864**
Minnesota	618	629	622	626	631	637	631	**636**	**581**
Mississippi	263	267	299	306	313	308	300	**304**	**310**
Missouri	846	862	870	864	863	852	850	**835**	**823**
Montana	119	123	122	122	121	121	119	**119**	**116**
Nebraska	169	173	175	175	175	174	181	**177**	**163**

Figure 36 - Continued
ADSL Connections by State 2010-2014
(Connections over 200 kbps in at least one direction, in thousands)

	2010	*2011*		*2012*		*2013*		*2014*	
State	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun+*	*Dec*
Nevada	242	245	250	255	255	255	257	**260**	**255**
New Hampshire	85	87	88	89	91	94	93	**94**	**90**
New Jersey	486	449	415	387	346	335	310	**294**	**274**
New Mexico	266	271	277	283	289	291	293	**296**	**292**
New York	957	928	875	841	777	761	723	**671**	**597**
North Carolina	995	1,026	1,050	1,059	1,063	1,076	1,071	**1,061**	**987**
North Dakota	69	71	71	71	73	72	70	**65**	**66**
Northern Mariana Isl	*	*	*	*	*	*	*	**0**	*
Ohio	1,177	1,190	1,184	1,175	1,178	1,184	1,205	**1,191**	**1,148**
Oklahoma	379	384	387	391	393	386	397	**391**	**390**
Oregon	359	360	363	373	370	364	364	**360**	**339**
Pennsylvania	1,159	1,131	1,098	1,063	1,017	994	943	**887**	**831**
Puerto Rico	*	*	*	*	*	*	*	*	*
Rhode Island	*	*	*	*	*	*	*	*	*
South Carolina	434	452	471	477	477	471	473	**475**	**470**
South Dakota	58	60	63	64	65	64	63	**61**	**62**
Tennessee	557	576	593	603	607	597	593	**577**	**569**
Texas	2,898	2,943	2,952	2,967	2,983	2,962	3,139	**2,926**	**2,903**
Utah	311	309	309	313	315	314	314	**306**	**294**
Vermont	85	87	94	97	98	100	99	**100**	**94**
Virgin Islands	*	*	*	*	*	*	*	*	*
Virginia	507	498	486	471	453	439	421	**410**	**400**
Washington	582	583	590	597	589	592	595	**593**	**553**
West Virginia	*	*	*	*	*	*	*	*	*
Wisconsin	646	658	657	651	651	648	663	**662**	**645**
Wyoming	59	59	61	62	62	62	62	**56**	**57**
Total	31,470	31,611	31,330	31,173	30,974	30,657	30,690	**29,873**	**28,527**

+ The June 2014 data have not been subjected to the typical quality checks.
* = Data withheld to maintain confidentiality.
# = Rounds to zero.

The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see pages 1-2). Some previously-published data may have been revised. Figures may not sum to totals due to rounding.

Figure 37
Cable Modem Connections by State 2010-2014
(Connections over 200 kbps in at least one direction, in thousands)

	2010	*2011*		*2012*		*2013*		*2014*	
State	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*
Alabama	539	556	576	592	615	630	648	**655**	**682**
Alaska	*	*	*	*	*	*	*	*	*
American Samoa	*	*	*	*	*	*	*	*	*
Arizona	1,161	1,104	1,169	1,156	1,210	1,188	1,253	**1,224**	**1,302**
Arkansas	278	288	301	308	313	320	324	**335**	**337**
California	4,639	4,853	5,034	5,222	5,413	5,578	5,735	**5,996**	**6,217**
Colorado	787	817	848	870	899	925	952	**967**	**1,008**
Connecticut	673	713	723	744	761	774	783	**798**	**897**
Delaware	156	164	*	*	174	182	181	**189**	**188**
District of Columbia	*	*	*	*	*	*	*	*	*
Florida	3,292	3,313	3,549	3,557	3,803	3,830	4,060	**4,029**	**4,226**
Georgia	1,114	1,151	1,190	1,245	1,291	1,358	1,420	**1,499**	**1,552**
Guam	*	*	*	*	*	*	*	*	*
Hawaii	*	*	*	*	*	*	*	*	*
Idaho	145	150	158	160	161	163	168	**172**	**191**
Illinois	1,696	1,768	1,857	1,936	2,020	2,100	2,145	**2,210**	**2,353**
Indiana	728	766	801	835	868	897	910	**929**	**1,005**
Iowa	389	395	397	403	407	415	413	**423**	**436**
Kansas	441	447	456	455	468	467	469	**456**	**467**
Kentucky	530	565	597	614	637	647	637	**598**	**610**
Louisiana	586	593	612	625	644	655	675	**682**	**695**
Maine	269	286	282	300	297	313	315	**310**	**316**
Maryland	773	797	826	842	873	888	912	**929**	**944**
Massachusetts	1,343	1,401	1,415	1,454	1,503	1,566	1,568	**1,608**	**1,635**
Michigan	1,537	1,603	1,643	1,687	1,756	1,807	1,835	**1,858**	**1,922**
Minnesota	776	800	820	846	874	894	914	**930**	**960**
Mississippi	246	258	263	271	273	277	280	**268**	**283**
Missouri	604	617	623	653	688	706	726	**727**	**746**
Montana	119	127	*	*	150	154	161	**160**	**169**
Nebraska	309	316	324	331	338	345	345	**344**	**357**

Figure 37 - Continued
Cable Modem Connections by State 2010-2014
(Connections over 200 kbps in at least one direction, in thousands)

	2010	*2011*		*2012*		*2013*		*2014*	
State	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*	*Jun*	*Dec*
Nevada	*	*	*	*	*	*	*	*	**575**
New Hampshire	325	340	342	354	358	370	373	**375**	**379**
New Jersey	1,702	1,759	1,775	1,830	1,847	1,886	1,890	**1,806**	**1,924**
New Mexico	176	190	193	198	203	211	216	**221**	**229**
New York	4,013	4,091	4,116	4,253	4,457	4,509	4,525	**4,420**	**4,505**
North Carolina	1,554	1,566	1,653	1,729	1,851	1,905	1,886	**1,647**	**1,804**
North Dakota	101	96	108	111	116	118	123	**122**	**129**
Northern Mariana Isl	*	*	*	*	*	*	*	*	*
Ohio	1,895	1,943	2,025	2,057	2,171	2,103	2,279	**2,134**	**2,225**
Oklahoma	468	474	487	490	502	508	519	**517**	**526**
Oregon	608	640	662	683	711	731	747	**761**	**796**
Pennsylvania	1,983	2,057	2,135	2,200	2,286	2,362	2,390	**2,342**	**2,416**
Puerto Rico	*	*	*	*	*	*	*	*	*
Rhode Island	*	*	*	*	*	*	*	*	*
South Carolina	660	664	691	730	780	816	841	**747**	**789**
South Dakota	134	124	138	141	143	144	145	**146**	**151**
Tennessee	795	824	853	881	911	938	959	**976**	**1,038**
Texas	2,459	2,577	2,686	2,804	2,888	2,962	3,037	**3,193**	**3,307**
Utah	283	303	316	325	339	352	365	**401**	**391**
Vermont	97	104	106	109	113	115	118	**120**	**124**
Virgin Islands	0	0	*	*	*	*	*	*	*
Virginia	1,124	1,141	1,154	1,187	1,238	1,242	1,268	**1,275**	**1,307**
Washington	1,239	1,296	1,329	1,362	1,400	1,461	1,492	**1,527**	**1,598**
West Virginia	255	274	285	297	306	308	312	**309**	**351**
Wisconsin	846	870	897	914	948	958	968	**963**	**1,005**
Wyoming	80	82	85	89	92	94	95	**93**	**99**
Total	45,334	46,698	48,263	49,664	51,646	52,760	54,009	**54,011**	**56,301**

+ The June 2014 data have not been subjected to the typical quality checks.
* = Data withheld to maintain confidentiality.
# = Rounds to zero.

The Commission approved changes to the Form 477 in June 2013 that affect the data beginning in June 2014 (see pages 1-2). Some previously-published data may have been revised. Figures may not sum to totals due to rounding.

Figure 38
Providers of Connections by Technology by State as of December 31, 2014
(Connections over 200 kbps in at least one direction, in thousands)

State	*ADSL*	*SDSL*	*Other Wireline*	*Cable Modem*	*Fiber*	*Satellite*	*Fixed Wireless*	*Mobile Wireless*	*Total*
Alabama	24	9	*	24	35	*	19	6	91
Alaska	15	5	9	*	6	*	9	8	39
American Samoa	0	0	0	*	*	0	*	*	*
Arizona	27	7	*	15	31	*	40	6	101
Arkansas	23	7	*	20	24	*	18	4	75
California	37	15	*	28	45	*	71	6	161
Colorado	37	9	*	14	39	*	54	9	125
Connecticut	9	7	17	11	*	*	*	4	44
Delaware	*	5	12	4	*	*	0	4	30
District of Columbia	*	9	19	*	19	*	*	4	40
Florida	28	11	*	24	44	*	27	5	108
Georgia	28	10	*	33	63	*	22	4	122
Guam	*	0	0	*	*	0	0	4	6
Hawaii	*	*	8	*	8	4	*	6	24
Idaho	25	6	*	15	28	*	26	9	74
Illinois	60	15	*	20	64	*	71	9	177
Indiana	38	12	*	15	48	*	53	5	114
Iowa	112	23	*	44	116	*	88	29	248
Kansas	31	12	*	26	48	*	44	9	109
Kentucky	24	7	*	29	40	*	27	7	104
Louisiana	17	7	*	16	26	*	12	4	68
Maine	14	10	*	7	15	*	9	5	43
Maryland	*	11	30	17	*	*	15	6	77
Massachusetts	*	11	26	11	*	*	12	4	66
Michigan	38	15	*	21	46	*	37	6	115
Minnesota	52	16	*	21	69	*	50	6	134
Mississippi	16	*	17	15	18	*	13	5	63
Missouri	36	13	*	19	43	*	61	8	138
Montana	24	4	*	10	23	*	25	5	64
Nebraska	33	7	*	20	39	*	35	8	94

Figure 38 - Continued
Providers of Connections by Technology by State as of December 31, 2014
(Connections over 200 kbps in at least one direction, in thousands)

State	*ADSL*	*SDSL*	*Other Wireline*	*Cable Modem*	*Fiber*	*Satellite*	*Fixed Wireless*	*Mobile Wireless*	*Total*
Nevada	17	10	*	8	20	*	16	7	68
New Hampshire	13	10	20	6	20	*	*	5	46
New Jersey	21	9	30	8	*	*	9	4	64
New Mexico	24	8	*	10	19	*	24	9	71
New York	40	12	35	22	*	*	23	4	106
North Carolina	24	10	*	24	41	*	28	7	104
North Dakota	30	12	14	6	26	4	19	7	61
Northern Mariana Isl	*	0	0	*	0	0	0	*	*
Ohio	42	12	*	30	48	*	43	5	135
Oklahoma	37	11	*	12	36	*	37	11	105
Oregon	41	12	*	15	44	*	33	6	100
Pennsylvania	35	12	*	29	40	*	19	8	113
Puerto Rico	*	0	4	*	6	*	6	5	20
Rhode Island	*	7	10	*	*	*	*	4	32
South Carolina	17	6	*	16	23	*	7	6	57
South Dakota	27	*	13	6	29	*	27	8	75
Tennessee	25	12	*	22	36	*	20	7	95
Texas	65	21	*	34	70	*	107	10	220
Utah	23	9	*	10	22	*	25	6	72
Vermont	11	*	11	6	16	*	4	5	37
Virgin Islands	*	0	*	*	*	*	4	4	12
Virginia	27	14	*	22	39	*	30	7	107
Washington	32	11	*	25	41	*	48	6	119
West Virginia	*	*	15	16	13	*	7	7	54
Wisconsin	44	15	*	20	56	*	41	10	125
Wyoming	16	*	13	5	14	*	22	7	52
Total	792	191	245	402	906	16	916	98	1,943

= Rounds to Zero.
* = Data withheld to maintain firm confidentiality.
Figures may not sum to totals due to rounding.
Source: FCC Form 477.

SECTION 4
SUMMARY STATISTICS: COUNTIES AND CENSUS TRACTS

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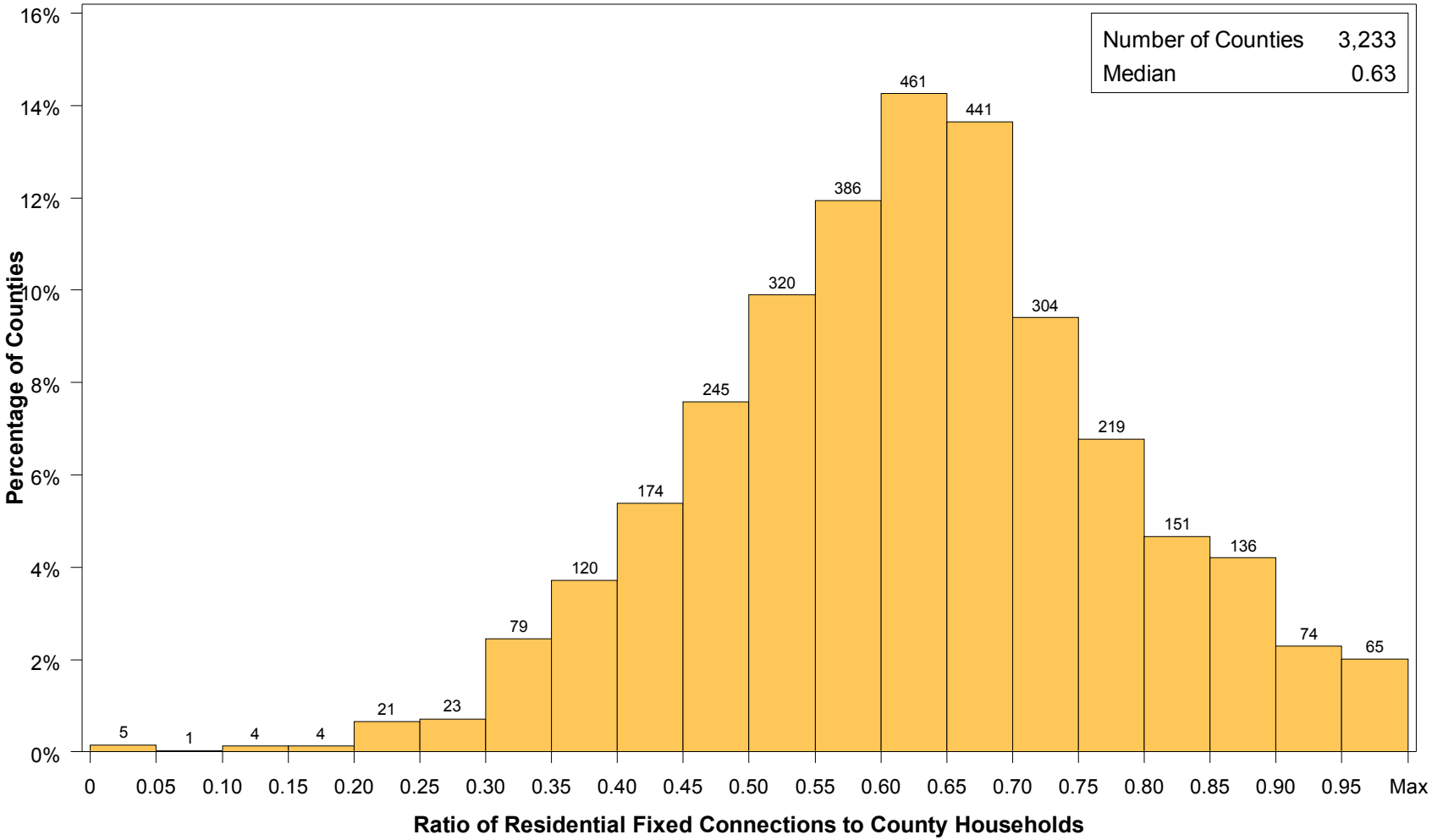
Figure 39
Distribution of Counties by Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to County Households as of December 31, 2014



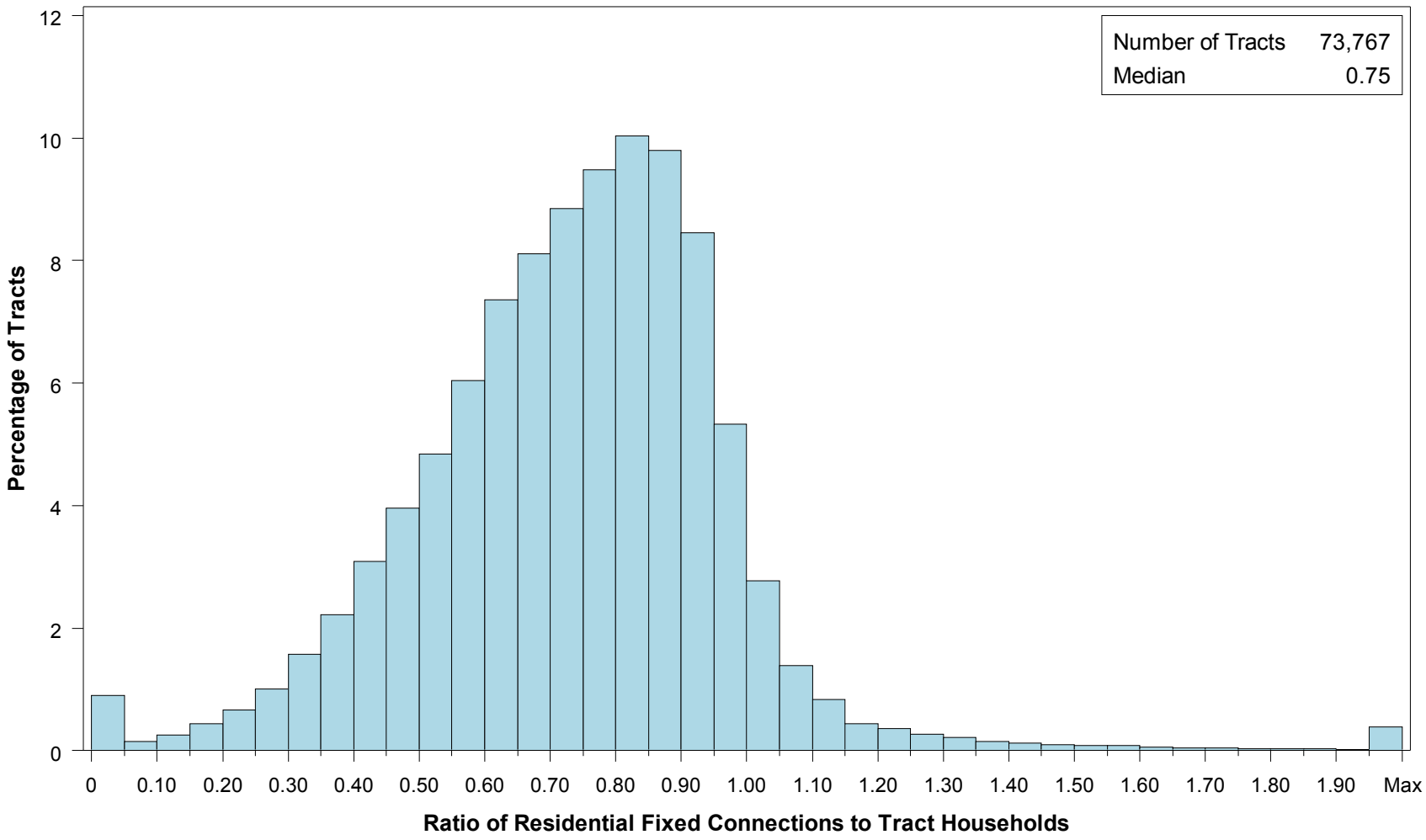
Note: Ratios over 1 were set to 1. See Technical Notes at the end of the report.
Sources: FCC Form 477; 2010-2014 ACS 5-year estimates; and Census 2010.

Figure 40
Distribution of Counties by Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to County Households by Technology as of December 31, 2014

	Ratio of Residential Fixed Connections to County Households										
Technology	*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*
aDSL	1.0	4.1	7.1	28.3	28.2	18.7	8.4	2.6	1.3	0.3	0.1
sDSL	81.9	17.7	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Other Wireline	90.7	8.6	0.2	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Cable Modem	12.7	7.9	7.9	16.1	15.6	14.7	12.2	8.2	4.1	0.3	0.2
FTTP	41.6	37.1	6.8	6.2	3.1	2.1	1.6	0.8	0.8	0.0	0.0
Satellite	0.7	64.2	23.8	9.9	1.2	0.1	0.1	0.0	0.0	0.0	0.0
Fixed Wireless	29.3	53.6	10.0	5.4	1.2	0.5	0.1	0.0	0.0	0.0	0.0
Total	0.1	0.0	0.0	0.2	1.4	6.2	13.0	21.9	44.0	11.7	1.5

Note: Figures may not sum to totals due to rounding. See Technical Notes at the end of the report.
Sources: FCC Form 477; 2010-2014 ACS 5-year estimates; and Census 2010.

Figure 41
Distribution of Census Tracts by Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to Tract Households as of December 31, 2014



Note: Ratios over 2 were set to 2. See Technical Notes at the end of the report.
Sources: FCC Form 477; 2010-2014 ACS 5-year estimates; and Census 2010.

Figure 42
Distribution of Census Tracts by Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to Tract Households by Technology as of December 31, 2014

	Ratio of Residential Fixed Connections to Tract Households										
Technology	*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*
aDSL	1.7	13.2	12.6	25.0	21.1	14.2	7.5	2.9	1.4	0.2	0.2
sDSL	96.5	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Wireline	98.8	1.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cable Modem	5.2	3.2	2.3	5.9	11.3	16.6	18.5	16.0	16.5	3.4	1.2
FTTP	64.4	14.6	2.8	3.9	3.2	3.4	3.6	2.3	1.5	0.2	0.1
Satellite	24.8	65.2	5.4	3.3	0.8	0.2	0.1	0.0	0.0	0.0	0.0
Fixed Wireless	77.1	18.1	2.3	1.7	0.5	0.2	0.1	0.0	0.0	0.0	0.0
Total	0.8	0.1	0.2	0.7	1.7	3.8	7.1	10.9	33.8	33.6	7.4

Note: Figures may not sum to totals due to rounding. See Technical Notes at the end of the report.
Sources: FCC Form 477; 2010-2014 ACS 5-year estimates; and Census 2010.

Figure 43
Percentage of Developed Census Blocks with Residential Fixed Connections by Technology as of December 31, 2014
(Connections over 200 kbps in at least one direction)

	Number of Providers							
Technology	*Zero*	*One*	*Two*	*Three*	*Four*	*Five*	*Six*	*Seven or More*
aDSL	27.5	68.9	3.4	0.1	0.0	0.0	0.0	0.0
sDSL	98.8	1.2	0.0	0.0	0.0	0.0	0.0	0.0
Other Wireline	96.3	3.7	0.0	0.0	0.0	0.0	0.0	0.0
Cable Modem	33.9	62.3	3.6	0.3	0.0	0.0	0.0	0.0
FTTP	85.0	14.5	0.5	0.0	0.0	0.0	0.0	0.0
Satellite	0.0	1.1	58.5	40.3	0.0	0.0	0.0	0.0
Fixed Wireless	61.2	26.4	8.8	3.1	0.5	0.0	0.0	0.0
Power Line	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
aDSL and/or Cable Modem and/or FTTP	15.2	24.3	52.6	7.2	0.7	0.0	0.0	0.0
Any Technology	0.0	0.2	4.4	15.1	33.6	29.2	12.3	5.2

Note: Figures may not sum to totals due to rounding. The number of providers in a census tract does not necessarily reflect the number of choices available to a particular household, and does not purport to measure competition. Developed census blocks are those with housing units based on the 2010 census.
Sources: FCC Form 477 and Census 2010.

Figure 44
Distribution of Counties by Ratio of Residential Fixed Connections to County Households by State as of December 31, 2014
(Connections over 200 kbps in at least one direction)

		Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to County Households										
State	*Counties*	*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	0	0	0	1	8	19	19	16	4	0
Alaska	29	0	0	0	0	1	3	4	6	9	5	1
American Samoa	5	3	0	1	0	1	0	0	0	0	0	0
Arizona	15	0	0	0	0	0	0	2	0	12	1	0
Arkansas	75	0	0	0	0	1	12	30	16	15	1	0
California	58	0	0	0	0	0	1	0	5	28	23	1
Colorado	64	0	0	0	0	0	1	4	10	24	15	10
Connecticut	8	0	0	0	0	0	0	0	0	5	3	0
Delaware	3	0	0	0	0	0	0	0	0	0	3	0
District of Columbia	1	0	0	0	0	0	0	0	0	0	1	0
Florida	67	0	0	0	0	0	1	2	16	12	29	7
Georgia	159	0	0	0	1	5	14	30	43	43	21	2
Guam	1	0	0	0	0	0	0	0	0	0	1	0
Hawaii	5	0	1	0	0	0	0	0	0	1	3	0
Idaho	44	0	0	0	0	0	3	7	9	19	5	1
Illinois	102	0	0	0	1	3	5	12	25	49	7	0
Indiana	92	0	0	0	0	0	1	9	27	49	6	0
Iowa	99	0	0	0	0	0	0	1	19	75	4	0
Kansas	105	0	0	0	0	0	3	8	21	62	11	0
Kentucky	120	0	0	0	1	1	4	20	42	45	4	3
Louisiana	64	0	0	0	0	1	8	12	16	25	2	0
Maine	16	0	0	0	0	0	0	0	1	7	8	0
Maryland	24	0	0	0	0	0	0	2	5	9	7	1
Massachusetts	14	0	0	0	0	0	0	0	0	5	6	3
Michigan	83	0	0	0	0	0	1	7	24	43	8	0
Minnesota	87	0	0	0	0	0	6	4	15	55	7	0
Mississippi	82	0	0	0	3	8	28	23	9	10	1	0
Missouri	115	0	0	0	0	1	7	22	42	38	5	0
Montana	56	0	0	0	0	0	1	1	8	39	7	0
Nebraska	93	0	0	0	0	0	6	16	19	45	5	2

Figure 44 - Continued
Distribution of Counties by Ratio of Residential Fixed Connections to County Households by State as of December 31, 2014
(Connections over 200 kbps in at least one direction)

			Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to County Households									
State	*Counties*	*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	0	0	0	0	2	2	4	7	2	0
New Hampshire	10	0	0	0	0	0	0	0	0	2	8	0
New Jersey	21	0	0	0	0	0	0	0	0	4	16	1
New Mexico	33	0	0	0	0	0	1	4	8	17	3	0
New York	62	0	0	0	0	0	0	0	9	39	12	2
North Carolina	100	0	0	0	0	0	1	11	20	53	13	2
North Dakota	53	0	0	0	0	0	0	2	6	35	10	0
Northern Mariana Isl	4	1	0	0	0	0	2	1	0	0	0	0
Ohio	88	0	0	0	0	0	5	2	19	58	4	0
Oklahoma	77	0	0	0	0	2	8	18	20	27	2	0
Oregon	36	0	0	0	0	0	0	1	8	21	6	0
Pennsylvania	67	0	0	0	0	1	2	4	11	36	12	1
Puerto Rico	78	0	0	0	0	12	12	32	18	3	1	0
Rhode Island	5	0	0	0	0	0	0	0	0	2	3	0
South Carolina	46	0	0	0	0	0	5	9	9	19	3	1
South Dakota	66	0	0	0	0	0	1	4	10	46	5	0
Tennessee	95	0	0	0	0	2	8	15	36	32	1	1
Texas	254	0	0	0	0	1	19	48	78	90	17	1
Utah	29	0	0	0	0	0	0	4	1	13	8	3
Vermont	14	0	0	0	0	0	0	0	0	7	7	0
Virgin Islands	3	0	0	0	0	0	2	0	0	1	0	0
Virginia	133	0	0	0	1	3	14	19	21	49	23	3
Washington	39	0	0	0	0	0	1	1	3	23	10	1
West Virginia	55	0	0	0	1	0	3	6	19	25	1	0
Wisconsin	72	0	0	0	0	0	0	2	8	56	6	0
Wyoming	23	0	0	0	0	0	0	1	3	16	2	1
Total	3,233	4	1	1	8	44	199	421	708	1421	378	48

Note: Figures may not sum to totals due to rounding. See Technical Notes at the end of the report.
Sources: FCC Form 477; 2010-2014 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 45
Distribution of Census Tracts by Ratio of Residential Fixed Connections to Tract Households by State as of December 31, 2014
(Connections over 200 kbps in at least one direction)

			Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to Tract Households									
State	*Tracts*	*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	1,179	4	1	1	4	47	109	205	230	369	163	46
Alaska	167	1	0	0	2	7	7	7	9	57	67	10
American Samoa	18	3	6	2	4	1	0	0	1	0	1	0
Arizona	1,526	26	5	11	5	20	42	79	152	384	565	237
Arkansas	686	2	1	0	11	36	78	144	122	187	90	15
California	8,036	54	4	7	12	52	95	270	537	2,298	4,018	689
Colorado	1,249	14	0	0	0	4	8	28	69	383	569	174
Connecticut	829	2	0	0	0	0	7	32	66	298	386	38
Delaware	215	1	0	0	0	1	0	4	13	57	101	38
District of Columbia	179	3	0	0	0	0	0	8	21	70	52	25
Florida	4,199	38	1	2	13	32	57	126	236	1,138	1,757	799
Georgia	1,964	10	1	3	10	40	112	195	272	612	590	119
Guam	56	5	1	0	8	3	2	4	5	9	4	15
Hawaii	326	12	1	0	4	4	4	9	15	94	141	42
Idaho	298	1	0	1	0	5	15	21	40	134	67	14
Illinois	3,121	7	4	5	10	36	113	269	404	1,181	1,012	80
Indiana	1,508	5	2	0	4	25	74	168	298	607	288	37
Iowa	825	3	0	1	0	0	6	40	138	502	118	17
Kansas	770	10	0	0	6	3	19	60	140	304	196	32
Kentucky	1,115	9	0	4	14	19	69	139	207	412	207	35
Louisiana	1,136	11	1	1	3	37	101	150	196	394	206	36
Maine	351	0	0	0	0	3	3	7	29	177	112	20
Maryland	1,394	8	0	0	6	9	41	84	88	340	695	123
Massachusetts	1,471	13	0	1	1	1	8	16	45	418	832	136
Michigan	2,767	31	0	1	19	66	169	249	323	975	870	64
Minnesota	1,335	4	1	1	15	11	44	62	137	592	435	33
Mississippi	661	4	1	2	20	60	140	122	95	149	57	11
Missouri	1,393	5	0	0	10	21	103	165	231	481	333	44
Montana	271	2	1	1	1	1	3	12	29	134	74	13
Nebraska	532	3	0	0	1	5	10	36	82	249	99	47

Figure 45 - Continued
Distribution of Census Tracts by Ratio of Residential Fixed Connections to Tract Households by State as of December 31, 2014
(Connections over 200 kbps in at least one direction)

			Ratio of Residential Fixed Connections over 200 kbps in at Least One Direction to Tract Households									
State	*Tracts*	*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	683	5	0	1	2	9	23	35	70	211	257	70
New Hampshire	294	2	0	0	0	1	0	1	4	74	190	22
New Jersey	2,004	10	0	0	1	3	5	7	55	520	1,144	259
New Mexico	499	4	3	2	10	8	22	53	85	190	101	21
New York	4,900	89	0	3	18	20	53	138	301	1,880	1,858	540
North Carolina	2,183	19	2	1	4	20	74	225	332	830	541	135
North Dakota	205	0	1	0	0	1	1	10	15	107	55	15
Northern Mariana Isl	22	2	0	0	1	3	5	7	1	3	0	0
Ohio	2,946	7	0	1	21	82	140	259	388	1,180	794	74
Oklahoma	1,046	2	2	3	15	46	85	147	177	325	185	59
Oregon	827	2	6	1	2	5	4	50	104	399	217	37
Pennsylvania	3,217	26	0	4	40	73	52	159	315	1,296	1,060	192
Puerto Rico	903	24	28	35	130	143	145	109	93	80	43	73
Rhode Island	241	1	0	0	0	0	0	1	5	108	116	10
South Carolina	1,097	10	0	0	4	21	85	145	180	338	239	75
South Dakota	222	0	1	0	0	1	4	6	22	135	46	7
Tennessee	1,497	22	1	3	11	42	125	203	273	509	264	44
Texas	5,253	39	0	7	44	136	369	638	765	1,469	1,373	413
Utah	588	4	1	3	1	1	5	8	23	177	302	63
Vermont	184	1	0	0	0	0	0	1	7	86	70	19
Virgin Islands	29	0	0	1	3	6	5	7	4	1	1	1
Virginia	1,895	24	0	0	8	40	87	121	200	431	763	221
Washington	1,446	3	1	1	1	7	16	38	86	548	657	88
West Virginia	484	0	1	3	8	16	27	55	79	211	66	18
Wisconsin	1,393	3	1	0	3	1	33	83	180	740	329	20
Wyoming	132	1	0	0	0	1	2	5	12	65	43	3
Total	73,767	591	79	113	510	1,235	2,806	5,222	8,006	24,918	24,819	5,468

Note: Figures may not sum to totals due to rounding. See Technical Notes at the end of the report.
Sources: FCC Form 477; 2010-2014 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 5
CORRELATED RESULTS: DEMOGRAPHIC MEASURES

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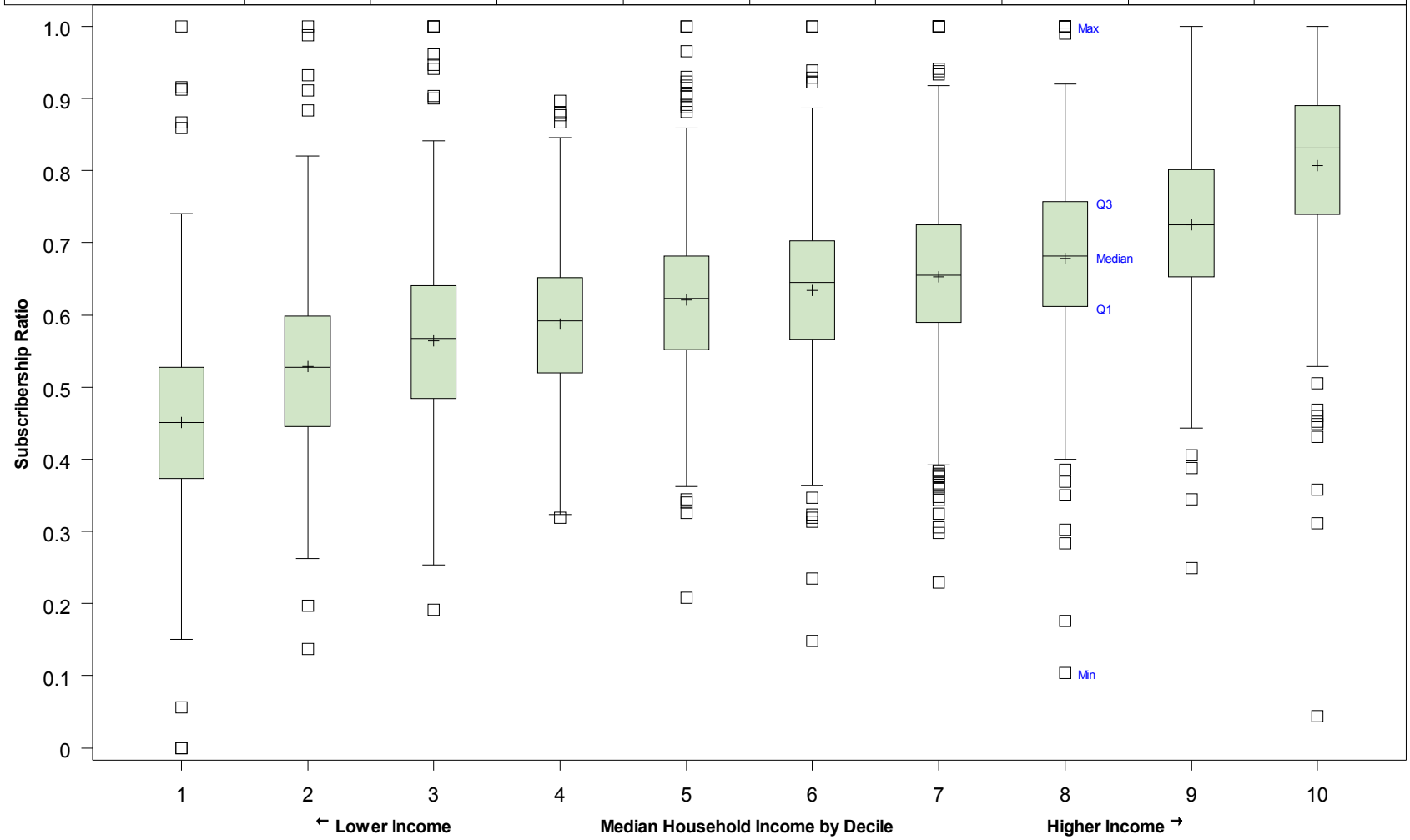
Figure 46
Subscribership Ratio Distributions by Income Deciles as of December 31, 2014

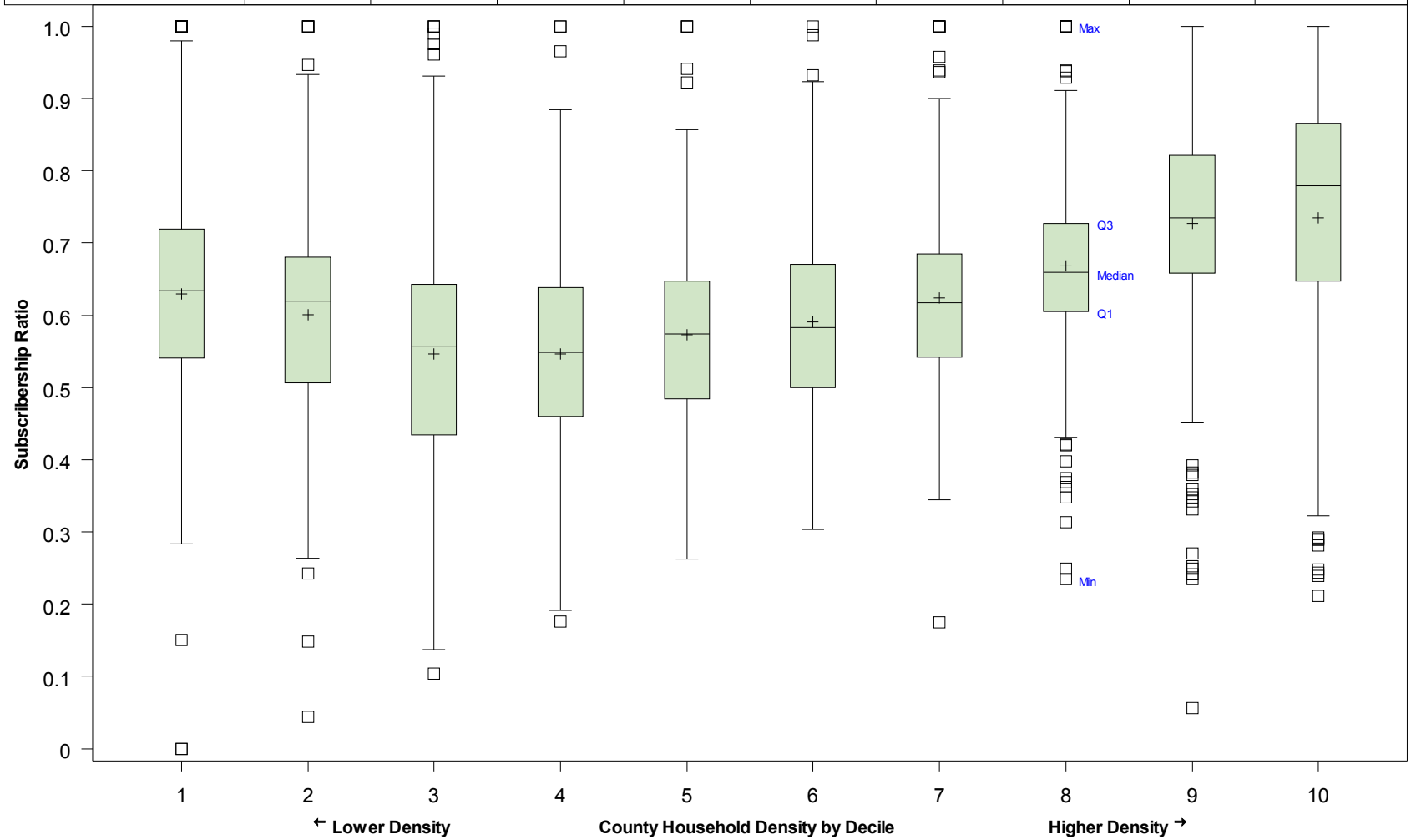
Subscribership Ratio										
Average	0.45	0.53	0.56	0.59	0.62	0.63	0.65	0.68	0.72	0.81
Median	0.45	0.53	0.57	0.59	0.62	0.64	0.65	0.68	0.73	0.83



Note: Each box plot shows the distribution of residential subscribership to connections over 200 kbps in at least one direction 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; 2010-2014 ACS 5-year Estimates; Census 2010.

Figure 47
Subscribership Ratio Distributions by Density Deciles as of December 31, 2014

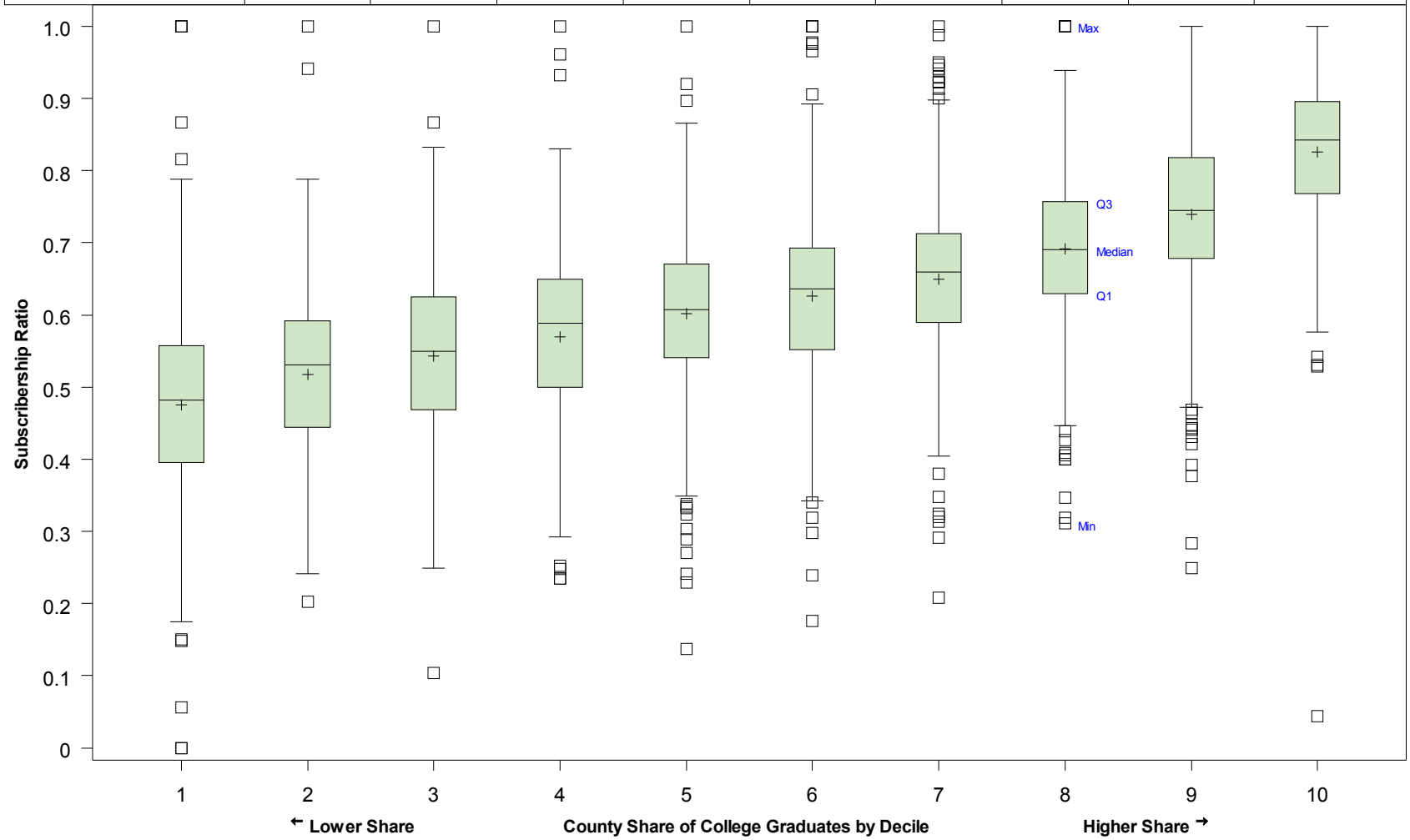
Subscribership Ratio										
Average	0.63	0.60	0.55	0.55	0.57	0.59	0.62	0.67	0.73	0.73
Median	0.63	0.62	0.56	0.55	0.57	0.58	0.62	0.66	0.74	0.78



Note: Each box plot shows the distribution of residential subscribership to connections over 200 kbps in at least one direction for counties in the density 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; 2010-2014 ACS 5-year Estimates; Census 2010.

Figure 48
Subscribership Ratio Distributions by Share of Population with a College Degree (in Deciles) as of December 31, 2014

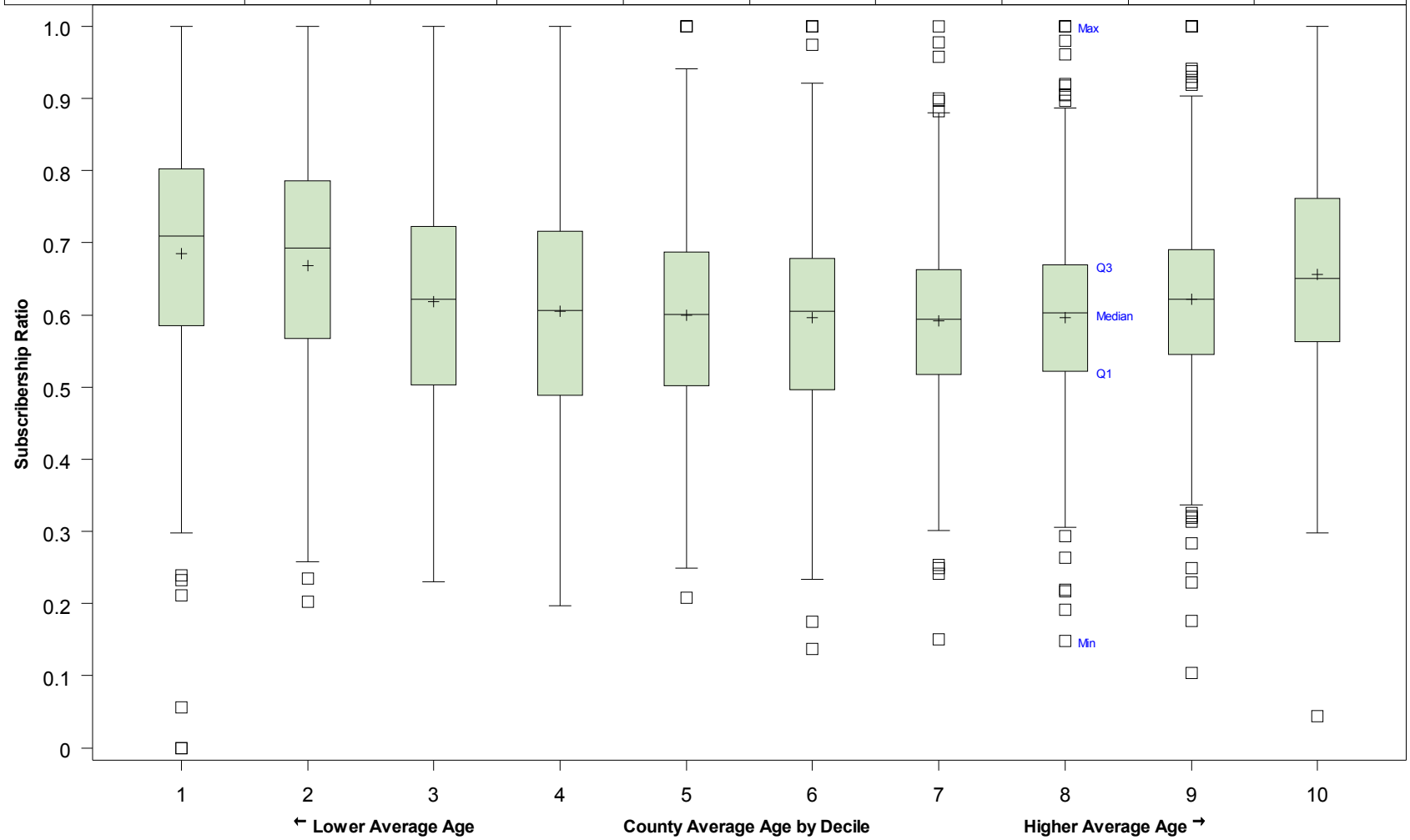
Subscribership Ratio										
Average	0.48	0.52	0.54	0.57	0.60	0.63	0.65	0.69	0.74	0.83
Median	0.48	0.53	0.55	0.59	0.61	0.64	0.66	0.69	0.75	0.84



Note: Each box plot shows the distribution of residential subscribership to connections over 200 kbps in at least one direction 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; 2010-2014 ACS 5-year Estimates; Census 2010.

Figure 49
Subscribership Ratio Distributions by Average Age of County Population (in Deciles) as of December 31, 2014

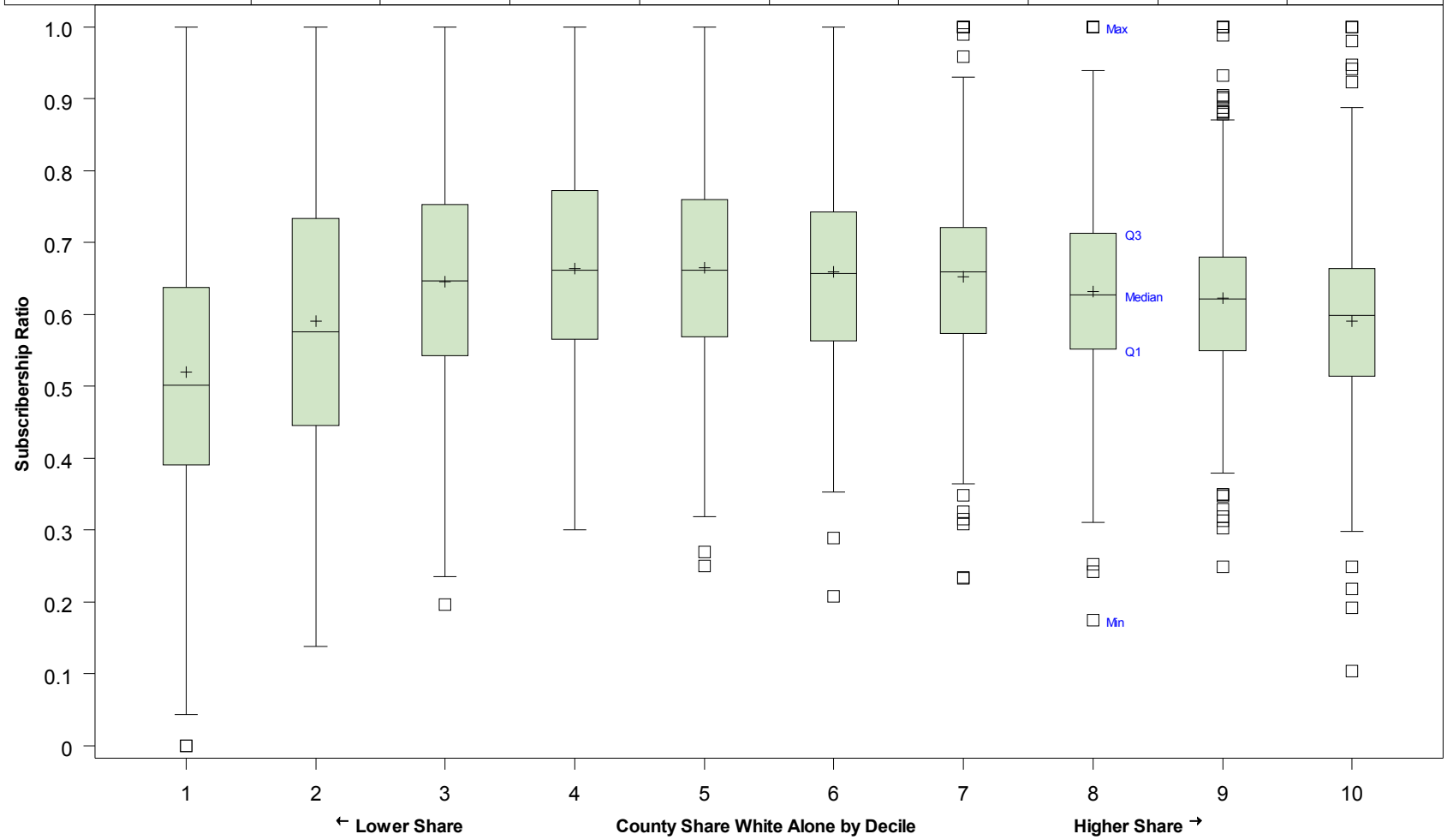
Subscribership Ratio										
Average	0.68	0.67	0.62	0.61	0.60	0.60	0.59	0.60	0.62	0.66
Median	0.71	0.69	0.62	0.61	0.60	0.60	0.59	0.60	0.62	0.65



Note: Each box plot shows the distribution of residential subscribership to connections over 200 kbps in at least one direction for counties in the average age 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; 2010-2014 ACS 5-year Estimates; Census 2010.

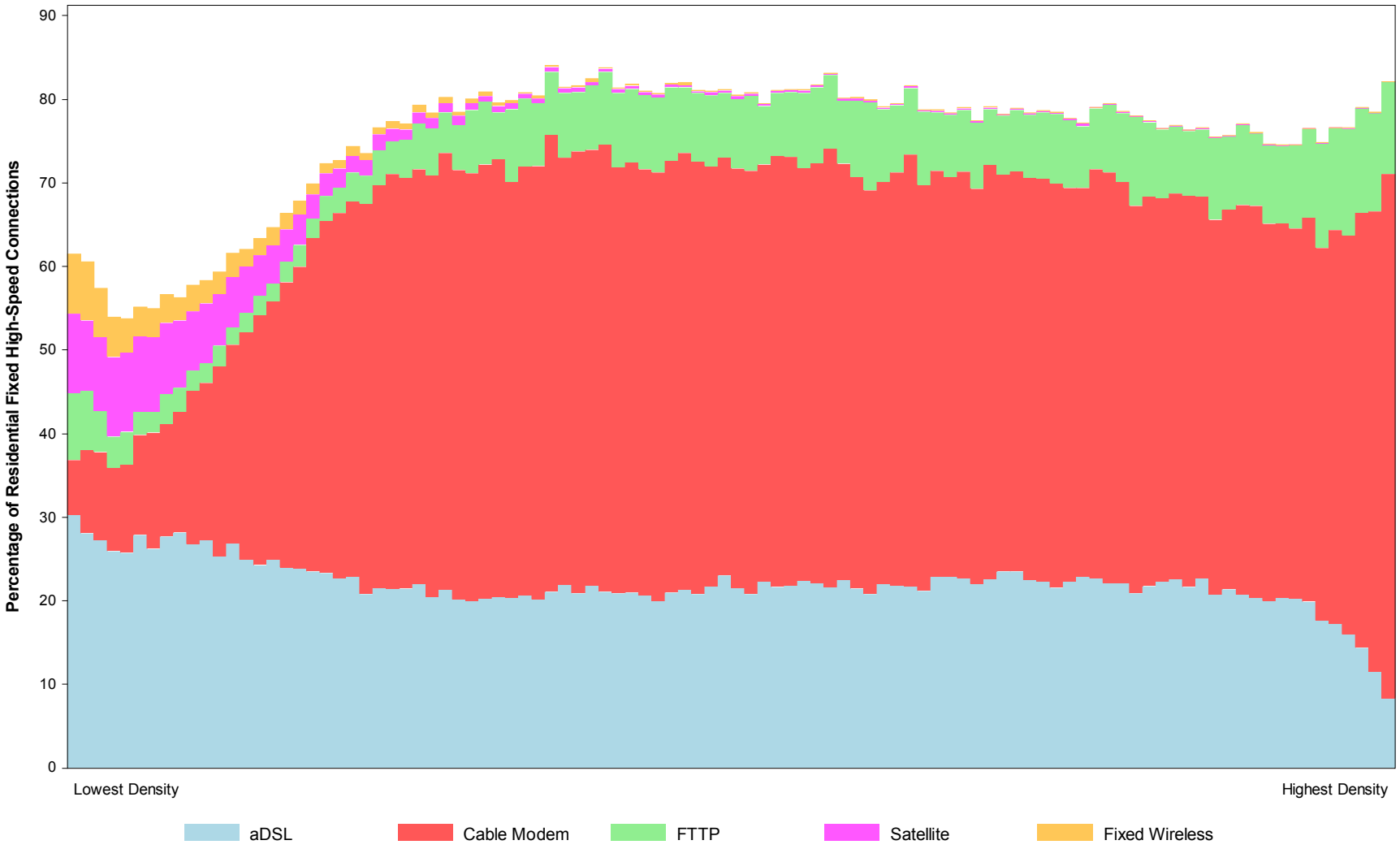
Figure 50
Subscribership Ratio Distributions by Share White Alone (in Deciles) as of December 31, 2014

Subscribership Ratio										
Average	0.52	0.59	0.65	0.66	0.67	0.66	0.65	0.63	0.62	0.59
Median	0.50	0.58	0.65	0.66	0.66	0.66	0.66	0.63	0.62	0.60



Note: Each box plot shows the distribution of residential subscribership to connections over 200 kbps in at least one direction for counties in each race decile. Counties were grouped into deciles based on the share of the county population that reported their race as white alone. 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; 2010-2014 ACS 5-year Estimates; Census 2010.

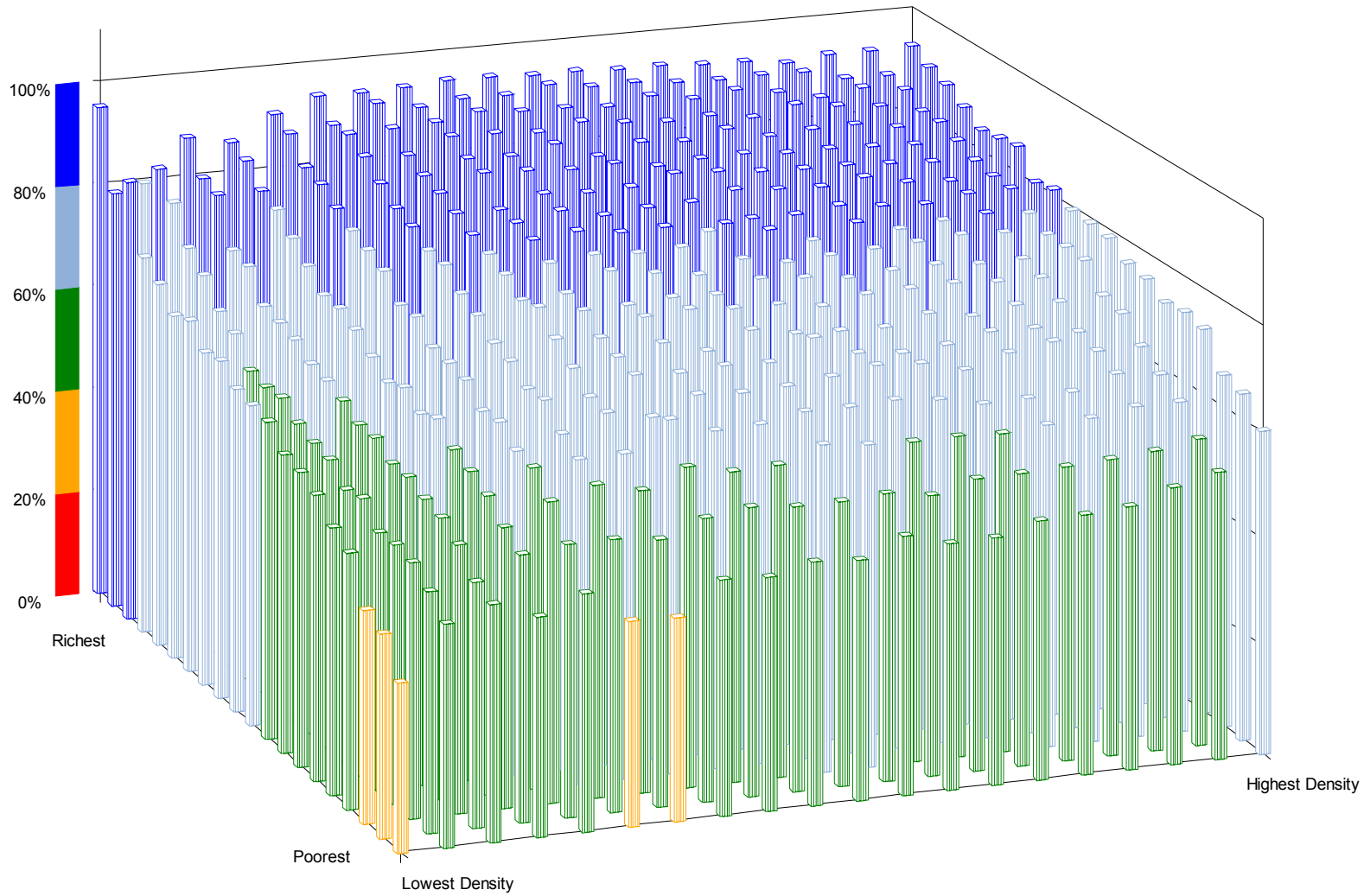
Figure 51
Subscribership Ratios by Technology and Tract Household Density as of December 31, 2014
(Residential fixed connections over 200 kbps in at least one direction)



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 to households across tracts in the percentile.

Sources: FCC Form 477; 2010-2014 ACS 5-year estimates; and Census 2010.

Figure 52
Average Subscribership Ratios by Income and Household Density as of December 31, 2014
(Residential fixed connections over 200 kbps in at least one direction 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 to households across tracts in the decile.

Sources: FCC Form 477; 2010-2014 ACS 5-year estimates; and Census 2010.

Technical Notes

General

Detailed information about FCC Form 477 reporting requirements is available at www.fcc.gov/form477. Wherever a number of providers is cited in this report, multiple Form 477 filers within a holding company structure count as one provider.

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 product subscribed to in the relevant geographic area, census tracts for fixed and states for mobile. Fixed providers report connections by the maximum advertised upload and download speeds, while mobile providers report connections by minimum advertised upload and download speeds. Fixed connections are further categorized by the technology employed by the part of the connection that terminates at the end-user location.

"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 Form 477 purposes, 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.

The mutually exclusive Form 477 technology categories are: asymmetric Digital Subscriber Line ("aDSL" in this report), symmetric Digital Subscriber Line ("sDSL"), other copper wireline, cable modem, optical carrier / fiber to the end user, satellite, terrestrial fixed wireless (using licensed or unlicensed spectrum), mobile wireless, electric power line, and all other (which is included to capture deployment of additional technologies over time). In the Form 477 data collection, aDSL-based services delivered over fiber-to-the-node architecture are reported in the aDSL category. The other wireline category comprises T1/DS1, T3/DS3, and other copper-based connections, not elsewhere categorized, that deliver *Internet access* service at the end-user location. Ethernet connections delivering Internet access service are reported in the other wireline category if the connection terminates over copper and in the FTTP category if the connection terminates over fiber. Connections deployed over hybrid fiber-coax (HFC) architecture are reported in the cable modem 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.

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.

Numbers of residential connections are estimated based on the total connections and percentage-residential connections information reported on Form 477.

Census tracts

Since the collection of data as of December 31, 2008, facilities-based providers of reportable fixed-location Internet access 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 2010 decennial census. For the purposes of this report, there are 73,767 census tracts because we exclude census tracts delineated specifically to cover large bodies of water.

About 110 of the census tracts have population but no households because the population resides in group living quarters. For the purpose of estimating residential subscribership rates by census tract, we assume these census tracts have no reportable *residential* Internet access service because persons residing in group quarters would have Internet access over a business connection provided to the operator of the group quarters. Therefore, these census tracts are included in the "zero" column.

Ratios of residential fixed-location connections to households that exceed 100%

We estimate the share of households with fixed-location connections in individual census tracts by taking the ratio of the reported number of fixed-location residential service 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 (from Census 2010-2014 ACS 5-year estimates), which could have an independent effect.

Maps showing residential subscribership rates by census tract

The two maps based on estimated Internet access 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.
Cable modem service	A service which offers customers access to the Internet over a cable system.
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 wireless	A radio communication service between specified fixed points.
Fixed technologies	All technologies other than terrestrial mobile wireless.
FTTH or FTTP	Fiber to the Home (Premises): A network access architecture in which optical fiber is deployed all the way to the customer's home (premises).
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).
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).
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.
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.

Customer Response

Publication: *Internet Access Services: Status as of December 31, 2014*

You can help us provide the best possible information to the public by completing this form and returning it to the Industry Analysis and Technology Division of the FCC's Wireline Competition Bureau.

1. Please check the category that best describes you:
   - ____ press
   - ____ current telecommunications carrier
   - ____ potential telecommunications carrier
   - ____ business customer evaluating vendors/service options
   - ____ consultant, law firm, lobbyist
   - ____ other business customer
   - ____ academic/student
   - ____ residential customer
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   - ____ other federal government employee
   - ____ state or local government employee
   - ____ Other (please specify)

2. Please rate the report:

	Excellent	Good	Satisfactory	Poor	No opinion
Data accuracy	(_)	(_)	(_)	(_)	(_)
Data presentation	(_)	(_)	(_)	(_)	(_)
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Completeness of data	(_)	(_)	(_)	(_)	(_)
Text clarity	(_)	(_)	(_)	(_)	(_)
Completeness of text	(_)	(_)	(_)	(_)	(_)

3. Overall, how do you rate this report?

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(_)	(_)	(_)	(_)	(_)

4. How can this report be improved?

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