Form 477

System Guide

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1   INTRODUCTION

Federal Communications Commission (FCC) Form 477 collects information about broadband connections to end-user locations, wired and wireless local telephone services, and interconnected Voice over Internet Protocol (VoIP) services in individual states. The term "state" includes the District of Columbia and the "Territories and possessions" (see 47 U.S.C. § 153(40)). Data obtained from this form is used to describe the deployment of broadband infrastructure and competition to provide local telecommunications services.

1.1   PURPOSE

This document describes how to use the Form 477 online application. It is the implementation of FCC orders 08-89 and 08-148 regarding enhanced broadband and local telephone competition data collection.

1.2   ADDITIONAL DOCUMENTATION

The reader should be familiar with the Form 477 Instructions available at the FCC Forms page, www.fcc.gov/formpage.html. That document contains a detailed description of who must file and line-by-line instructions for completing the form. Also on the FCC Forms page are screen shots of the screens that are part of this system.

2   SYSTEM SUMMARY

The Form 477 application is a web interface that allows broadband, wired and wireless local telephone, and interconnected VoIP service providers to submit data to the FCC. The system has four components:

- Authentication Using the COmmission REgistration System (CORES) FCC Registration Numbers (FRNs) and Password

- Web Form for Collecting Parts I-V Form 477 Data

- Web Form and File Upload Option for Collecting Part VI Census Tract Summary Data

- Web Form for Collecting Part VI Address Data (requires prior approval)

3   USING THE SYSTEM

Before using the application, it is necessary to have an FCC Registration Number (FRN) in the Commission Registration System (CORES). The URL for CORES is https://fjallfoss.fcc.gov/coresWeb/publicHome.do.

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3.1 OBTAINING AN FRN

If you already have an FRN and associated password proceed to login as described in Section 3.2. Otherwise, complete the following steps before trying to access the system. There are no restrictions on using an existing or new FRN. Single or multiple FRNs may be used for a particular state or nationally, as long as any individual Form 477 submission is uniquely identified by: FRN; Name of company – which is item #2 on the Cover Page information; Type of operations – either incumbent local exchange carrier (ILEC) or non-ILEC; and State.

1. Access the CORES database at https://fjallfoss.fcc.gov/coresWeb/publicHome.do.

2. Create an FRN by filling out all of the required fields, and clicking "Submit." A confirmation page will be displayed showing the FRN and login password. Save or print the resulting confirmation page for future reference.

Proceed to the Form 477 online application using the FRN and password you just created.

3. *If you already have an FRN that you wish to use, but you do not recall the password, consult the "Passwords" section of the Frequently Asked Questions, which are located in the "Customer Service" section at the bottom of the CORES Webpage, for information and assistance.*

3.2 LOGIN / AUTHENTICATION TO THE NEW FORM 477 SUBMISSION SYSTEM

Note: You must enable cookies on your browser to use this system.

1. Open a browser and go to the Electronic Filing link that you will find by scrolling down to "477" in the "Current FCC Forms" section at http://www.fcc.gov/formpage.html. The link will be in the left-hand column of the page, under "477."

2. Enter your FRN and Password.

3. Click the "Login" button

3.3 USING THE MAIN MENU

You will now see the main menu, which allows you to create a new Form 477 Submission. Note that you can always reach this page by clicking on the link Form 477 Home which is in the top left corner of every page. At the top of the screen will be a header with the FRN and company name.

1. To create a new Form 477 Submission, select the state from the drop-down list, then select ILEC or Non-ILEC for Operations, and click the "Create New" button in the "Create New Form 477" section. Leave the "Data As Of" drop-down to the default value unless this data is for a different point in time.

Figure 1 - "Create New Form 477" options.

3.4 COMPLETING THE COVER PAGE

Once you have clicked "Create New," the "Cover Page" data screen for Form 477 will be displayed. This screen contains administrative summary data for the Form 477 submission. Check that the company name (item #2) has been filled in properly from the CORES database. If that field is blank, enter the name of your company or operations.

1. Select an option for item 4, the common-control name. If the common-control name of your entity is shown on the drop-down list, select it. Otherwise, you can select "not shown" and enter the correct name in the box provided, or select "same as company name."

2. Enter information for items 6, 7, 10, and 11, which are required fields. Also review item 9, for which the default value is "No."

3. When you are satisfied that the data on this page is complete, click the button "Save and Go to Edit Menu."

NOTE: You can reach this Cover Page at any time by clicking on the hyperlink "Form 477 Submission for FRN:.." at the top of the Submission Menu (Section 3.5).

3.5 USING THE SUBMISSION MENU

The Submission Menu (also referred to as the Edit Menu) for Form 477 Submissions will be displayed, indicating that no data has been entered (See Status column). The submission is created with a filing status of "Original – In Progress." This is shown at the bottom of the form. The Submission Menu is the starting point to enter any kind of broadband or voice information.

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Figure 2 - New Form 477 Submission Menu

3.6   A FORM 477 SUBMISSION WITH INSUFFICIENT DATA CANNOT BE SUBMITTED

Submissions lacking required data will not be accepted as valid. In particular, if no data has been entered yet, this submission cannot yet be filed. If you click on "Submit this submission as complete" at the bottom of the Submission Menu, a message will appear stating the first error that is found such as that there are no statewide totals entered. If you reach this point, click the link entitled "Return to Current Submission Menu," and note that the status is still listed as "Original – In Progress."

The following sections describe how to input data starting at the Submission Menu.

3.7   ENTERING PART I, BROADBAND STATEWIDE TOTALS

If you are a facilities-based provider of any kind of broadband connections to end users (see instructions - WHO MUST FILE THIS FORM),

1. From the Form 477 Filing (Submission) Menu, under "Data Section," click "Part I.A: Broadband - xx" where xx is any of the 10 technologies listed.

This will bring up the statewide totals section for this part of the filing. See Figure 3 on the following page.

2. Enter information on the total number of connections in the state in column (1).

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Figure 3 – Entering Data on Part I.A

3. Enter the appropriate percentages of the connections listed in column (1) into columns (2) through (5). Percentages should be entered as numbers between 0 and 100. If the correct percentage is 0, you must enter 0 rather than leaving the cell blank.

4. Enter the number of connections in each of the relevant speed tiers in columns (6) through (13), then click "Save and Return to Edit Menu." For example:

You do not have to enter data for every cell in the grid. Any number of cells can be entered. Make sure that the total number of connections in the grid sums to the total for column (1) labeled "Total connections."

The Part I.A. data for "Symmetric xDSL" and "Other Wireline"[1] will both contain only one row for columns (6) through (13), since upload and download speeds are the same. Keep in mind that the sum of all entries in columns (6) through (13) must add up to the value reported for (1).

The Part I.A. data for Terrestrial Mobile Wireless is similar to the basic 8x9 grid for Asymmetric xDSL and the other non-Symmetric technologies, but contains a percentage residential in the statewide totals as well. However, Terrestrial Mobile Wireless data does not have to be submitted by census tract in Part VI of this form. Column (2) is not applicable for this technology.

5. If you are an ILEC reporting any type of DSL connections in your "study area," a cable system reporting cable modem connections in your franchise area, or a Terrestrial Mobile Wireless provider reporting subscribers in Part I.A, click "Part I.B: Broadband xDSL (asymmetric or symmetric) / Cable Modem / Terrestrial Mobile Wireless" to enter data for Part I.B. Note that Part I.B only applies to these broadband technologies. Enter a numeric value between 0 and 100 for xDSL and cable modem, and a number for Terrestrial Mobile Wireless, then click "Save and Return to Edit Menu."

3.8 ENTERING PART II, LOCAL TELEPHONE AND INTERCONNECTED VoIP TOTALS

If you are a provider of local exchange telephone service (see instructions - WHO MUST FILE THIS FORM),

1. From the Form 477 Submission menu, click "Part II.A: Local Exchange Telephone Service."

2. Enter the number of lines in column (1) row (a), and a number between 0 and 100 for rows (b) through (k).

Make sure that the total for percentages (e) through (h) equals 100, and that the total for percentages (i) through (k) is less than or equal to 100.

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[1] Other Wireline most frequently refers to T-carrier and Ethernet carried over copper.

3. Click "Save and Return to Edit Menu" to save.

Note that a link for "Part V: ZIP Code Information -- Local Voice Telephone Service and Interconnected VoIP" now appears in the menu.

If you are a provider of Interconnected Voice over Internet Protocol (VoIP) service (see instructions - WHO MUST FILE THIS FORM),

1. From the Form 477 Submission menu, click "Part II.B: Interconnected VoIP Service."

2. Fill in columns (1) through (3).

Make sure that the sum of the percentages entered in rows (d)-(h) equals 100.

3. Click "Save and Return to Edit Menu" to save.

3.9 PART III, MOBILE LOCAL TELEPHONE INFORMATION

If you are a provider of mobile local telephone service (see instructions - WHO MUST FILE THIS FORM),

1. From the Form 477 Submission menu, click "Part III: Mobile Local Telephone Service."

2. Enter the number of subscribers and the percentage that are directly billed or pre-paid.

3. Click "Save and Return to Edit Menu" to save

3.10 ENTERING PART IV INFORMATION, EXPLANATIONS AND COMMENTS

1. From the Form 477 Submission menu, click "Part IV: Explanations and Comments."

2. Enter any comments into the text box, and click "Save and Return to Edit Menu."

3.11 ENTERING PART V DATA, ZIP CODE INFORMATION

If you entered information in Part II, either II.A or II.B, you must complete Part V, but DO NOT enter any census tract information into Part VI.

1. From the Form 477 Submission Menu, select "Part V: ZIP Code Information -- Local Voice Telephone Service and Interconnected VoIP."

2. In the "Part V: Zip Code Information" box, enter all ZIP codes in which you have subscribers separated by commas, spaces, carriage returns or any combination thereof.

3. Click "Save and Return to Edit Menu" to save. You should now be at the Form 477 Submission menu. The status column for Part V should display the total number of ZIP codes entered as the number of "ZIP Codes on file."

3.12 ENTERING CENSUS TRACT INFORMATION BY HAND (NOTE: IF ENTERING CENSUS TRACT INFORMATION VIA BULK UPLOAD, SKIP TO SECTION 3.14.)

1. From the Form 477 Submission menu, click the button "Enter Census Tract Detail Data by Hand" near the bottom of the page.

2. When the "Part VI: Broadband by Technology, Census Tract, and Download/Upload Information Transfer Rate Combinations" window appears, select a technology, county, and census tract for data input.

Note: For the technology "All Other" you must also enter the technology in the box provided.

3. Click the button "Enter data for this Census Tract." The Census Tract data screen will appear.

4. Enter data for any of the cells in the grid that have an entry in the state totals. You will not be able to enter numbers into cells that have no entry in the state totals.

Note: For each technology for which you have any customers in the state (as reported in Part I.A), you must enter tract-level data for each tract in your defined service area, regardless of whether you have customers in that tract. If you have no customers in a particular census tract for one of these technologies simply enter zeros for number of connections and percentage residential in any pair of cells that allows data entry, i.e., any speed tier that you have at least one customer in the state. (See instructions for further information on service areas)

The "Number of Connections" value must be an integer. The "Percentage Residential" must be between 0 and 100, and can include up to three numbers after the decimal point. If a "Number of Connections" is entered, then the corresponding "Percentage Residential" is required. Any number of values can be entered in the grid. If the entire grid is left blank, no data will be saved.

5. When you have entered all desired values, click "Save and Return to Edit Menu."

When the Edit menu is displayed, you should now see a link at the bottom of the "Part VI: Broadband Connection Counts by Technology, Census Tract, and Information Transfer Rate" section that allows you to View or Edit the Census Tract data. Note that each "record" has a unique county, census tract, technology, upload rate, and download rate.

Figure 4 - "View/Edit" Link for Census Tract Data

3.13   REVISING CENSUS TRACT INFORMATION

1. Click the "View/ Edit Census Tract Detail Data" link.

There will be a summary list of all census tracts which contain data for each technology entered.

2. Click the checkbox or the county name to edit, or simply view, the record.

You will see the same "Census Tract Detail" entry page as before, but with the data you entered pre-filled.

3. Make any changes or additions to the data for this census tract.

4. Click "Save and Return to Edit Menu."

3.14   ENTERING CENSUS TRACT INFORMATION BY UPLOAD FILE (NOTE: IF MANUALLY ENTERING CENSUS TRACT INFORMATION, SEE SECTION 3.12.)

1. From the Form 477 Submission menu, click the button "Submit File for Census Tract Bulk Data Upload."

2. In the "Census Tract Data File Upload" section, click "Browse" and navigate to the file you wish to upload. See Appendix B or scroll down the "Census Tract Data File Upload" section for the required file format. Note that the fields must be comma delimited .txt or .csv in format.

Note: For each technology for which you have any customers in the state (as reported in Part I.A), you must enter tract-level data for each tract in your defined service area, regardless of whether you have customers in that tract. If you have no customers in a particular census tract for one of these technologies simply enter zeros for number of connections and percentage residential in any speed tier for which you have at least one customer in the state. (See instructions for further information on service areas)

3. Select the "Replace," "Merge" or "Append" option (except for the first time you load data into the system when no choice is available). The "Replace" option replaces all census tract data, for all technologies, that was previously entered into that particular Form 477 submission by file upload or by hand. The "Merge" option modifies census tract data for tracts you have already entered and adds new data. The "Append" option adds new census tract data. Turning the "Error Messages" option ON will show all error messages but will slow the upload process. It should only be used on relatively small files (See Section 3.15).

When you click the "Upload and Import Census Tract Data" button, the "File Upload Confirmation" window is displayed. Confirm that "YES" is displayed next to the label "File was saved OK."

4. Click "Add Census Tract Information to the database."

The upload has three phases:

- Inserting the census tract file into a temporary location in the database.

- Either updating the merge data or deleting old Census Tract data if either of those options has been selected.

- Inserting the uploaded data into the permanent Form 477 database tables.

The web site will display messages while the data is merged into the database, and will ultimately present a message stating that "Upload to database is complete." For example:

Updating Form 477 Database: File Rows 1 through 500

Upload to database is complete.

384 census tract records from input file.

A total of 385 census tract records exist for this Form 477 filing.

Return to Submission Menu for this filing.

Figure 5 - Database upload notification

5. Click the "Return to Submission Menu for this Filing" link, and confirm that the correct number of records is listed in the "View/Edit Census Tract Detail Data" link at the bottom of the page.

You may view a summary of the census tract data that has just been uploaded by clicking the View/Edit Census Tract Detail Data link.

6. After viewing the list, click the "Current Form 477" link at the top of the page to return to the current submission.

Note 1: For the technology "All Other" you must also identify the technology in Part IV, Comments, if you have provided an upload file of census tract information.

Note 2: For the technology "Terrestrial Mobile Wireless" census tract upload records should show one (1) for the number of connections and zero (0) for percentage of lines that are residential.

3.15 ENTERING CENSUS TRACT INFORMATION BY UPLOAD FILE – LARGE FILES

There is a limit of 100,000 records for a file upload. For larger amounts of data it is necessary to break the data into files containing no more than this number.

1. From the Form 477 Submission menu, click the button "Submit File for Census Tract Bulk Data Upload."

Note that if you uploaded a file in step 3.13 it is listed in the section "Previously uploaded files."

2. In the "Census Tract Data File Upload" section, click "Browse" and navigate to the file you wish to upload.

3. Select the "Replace" (or "Merge" or "Append") option (except for the first time you load data into the system when no choice is available). Be sure that the "Error Messages" option is turned OFF or it will take a very long time to upload the file.

4. When you click the "Upload and Import Census Tract Data" button, the "File Upload Confirmation" window is displayed.

5. Confirm that "YES" is displayed next to the label "File was saved OK," and click "Add Census Tract Information to the database."

The upload has three phases:

- Inserting the census tract file into a temporary location in the database.

- Either updating the merge data or deleting old Census Tract data if either of those options has been selected.

- Inserting the uploaded data into the permanent Form 477 database tables.

The large file upload will take a considerable amount of time and will tie up this web browser window while it is uploading. However you may continuing working in other windows of this browser or use another browser during this time.

6. Repeat steps 1-5 for the files that are part of this census tract submission using the "Append" option for the succeeding files.

When the process is complete, the "Upload to database is complete" message will be displayed.

7. Click "Return to Main Menu for this filing." The "View/Edit" census tract detail link should indicate the number of census tract detail records that exist.

3.16   SUBMITTING A VALID FORM 477

Submitting a file which is marked "Original – In Progress was discussed in Section 3.6. If you now have a valid filing,

1. From the Submission menu, click the link "Submit this submission as complete." This will bring up the "Change Status" menu.
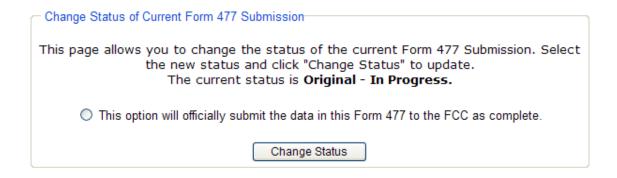
Figure 6 - Filing Submittal

2. Click the option button next to the text "This option will officially submit the data in this Form 477 to the FCC as complete," and then click "Change Status."

The system will run tests in the background, and display a page with the notice reading "This Submission was accepted. The submission has been accepted and is now protected."

3. When the submission is accepted, click the "Return to Current Submission Menu" link.

The submission menu items will now be protected, allowing only viewing. If the status had been "Original – In Progress" the new status will be "Original – Submitted." If the previous status was "Revised – In Progress," then the new status will be "Revised – Submitted." In either case you will only be able to view it unless you reopen it for editing (see Section 3.17).

Figure 7 - Main Menu with submitted entry.

4. Click the "Form 477 Home" link at the top of the screen to return to the main menu.

3.17   RE-OPENING A PREVIOUSLY-SUBMITTED FORM 477

1. Click the "View" Link from the main menu to get to the Submission menu for a previously successful submission.

At the bottom of the Submission Menu, there is an indication that the current status for the filing is "Original – Submitted" or "Revised – Submitted."

2. Click the link "Revise this Submission." The status change window will appear as, for example:

Figure 8 - Status menu for a Submitted filing

3. Click the re-open option button and click "Change Status" to re-open the file for revision.

4. When the message stating "This Submission has been re-opened for revision" is displayed, click "Return to Current Submission Menu."

The Submission will be listed as "Revised – In Progress."

3.18   SUBMISSION WHERE CENSUS TRACT VALUES DO NOT ADD TO STATE TOTALS

If the Census Tract Values do not add to Reported State Totals when submitting the filing as described in Section 3.15 the filing is rejected. In this case a grid is displayed showing where the reported state totals and the computed totals based on census tract detail differ. This grid should appear as, for example:

Figure 9 - Non-matching Totals for submission

1. Click "Return to Current Submission Menu," then "View/Edit Census Tract Detail Data."

2. Select the census tract(s) or state total in error and make corrections.

3. When you have saved and are back at the filing menu, click "Submit this submission as complete," and submit the submission as described in Section 3.16.

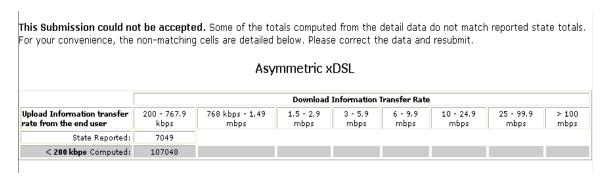### 3.19   SERVICE-LOCATION ADDRESS DATA

If you are authorized to submit address data in lieu of census tract data, and at least one technology has had State Totals entered, click "Enter Address Data by Hand" in the Submission Menu. The Address data is entered in a similar manner to the Census Tract data. Either a full address or the first line of an address and a set of latitude/longitude coordinates are required to define a particular address. Once an address has been entered, the actual grid data for details is exactly the same as the Census Tract data input. It is not possible to enter address data for "Terrestrial Mobile Wireless."

Note: When entering Latitude and Longitude information you must enter values for degrees, minutes and seconds, even if they are zero.

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APPENDIX A: HELPFUL REMINDERS

I. Data Entry Reminders/Restrictions/Recommendations (the 3 Rs)

1. To reach the Cover Page click the link "Form 477 Submission for FRN:…" at the top of the Submission Menu
2. Always start a new state submission by entering applicable data in Parts I, II, and III before entering anything in Parts IV, V, and VI
3. The "Number of Connections" value must be an integer in Part I.A and in Part VI
4. If a "Number of Connections" is entered in Part VI, then the corresponding "Percentage Residential" is required
5. Percentages must be from 0 to 100, and can include up to three numbers after the decimal point
6. Latitude and Longitude must have degrees, minutes and seconds entered even if they are zero
7. A Terrestrial Mobile Wireless upload file record should have one (1) and zero (0) as the last two entries
8. For any broadband speed combination the sum of the entries for all census tracts in Part VI must equal the state total for that speed combination shown in Part I.A
9. There is a limit of 100,000 records for an individual upload file
10. Turn the "Error Messages" option off when uploading a large file or it may take a very long time
11. Click "View/Edit" at the bottom of the Submission Menu to see and/or modify census tract data you have entered. The button "Enter Census Tract Detail Data by Hand" only allows submission of entirely new data and will overwrite any data previously entered.
12. If you enter data in Part I.A under "All Other" you must enter the technology when completing Part VI. If you upload census tract data then put this information into Part IV, Comments.
13. If you enter data in Part II then you must enter ZIP codes in Part V
14. Use tab or click to move around on a screen; do not use Enter/carriage return

II. Useful Hyperlinks (Hot Links)

Link	Purpose
Form 477 Home	Display Main Menu
Form 477 Submission for FRN: xxx	Display Cover Page
Current Form 477	Display Submission Menu
View/Edit Census Tract Detail Data (nn records)	View or change previously entered census tract data
Submit this submission as complete	Submit or reject and display error messages
Log Out	Logs user out and displays log in menu

APPENDIX B: CENSUS TRACT UPLOAD DATA ELEMENTS

Position	Value	Data Type	Description
1	**County FIPS**	Integer	County FIPS Code (3 digits). The County is a part of the Census Tract definition.
2	**Census Tract**	Decimal number	Census Tract value. Census tracts are represented as numbers with a decimal, such as "3042.00." Up to four digits before the decimal, up to two digits after.
3	**Upload Rate**	Integer	Upload Rate as defined in the "Rates" table detailed below.
4	**Download Rate**	Integer	Download Rate as defined in the "Rates" table detailed below.
5	**Technology Code**	Integer	Technology Code as defined in the table below. Note that the values and percentages for "Terrestrial Mobile Wireless" Technology will behave differently than all other technologies. For the purpose of this data upload, when compiling your file for submission, assign "Percentage Residential" of 100% and value of "1" for any census tracts containing data for "Terrestrial Mobile Wireless."
6	**Technology Code Other**	Integer or empty	This is for Technology Types which do not exist in the assigned list of Technologies. Note that "Ethernet" is not a valid "Other" technology code. If you use Technology Code Other, then the value for "Technology Code" <u>must</u> be '0' (numeric zero). Leave this field blank for the standard technology codes.
7	**Number of Connections**	Integer	Number of connections in this census tract for this combination of technology code, upload rate, download rate.
8	**Percentage Residential**	Number between 0 and 100. Up to three numbers to the right of the decimal.	The percentage of connections for this combination of technology code, upload rate, download rate which are "Residential." The format for percentage data input is "XXX.XXX." For example, if 1/2 of the connections in a census tract are residential, enter "50" or "50.000" for this value. "0.50" will be translated as one half of one percent.

Upload Rates	
Rate Code	**Description**
1	Less than or equal to 200 kbps
2	Greater than 200 kbps and less than 768 kbps
3	Greater than or equal to 768 kbps and less than 1.5 mbps
4	Greater than or equal to 1.5 mbps and less than 3 mbps
5	Greater than or equal to 3 mbps and less than 6 mbps
6	Greater than or equal to 6 mbps and less than 10 mbps
7	Greater than or equal to 10 mbps and less than 25 mbps
8	Greater than or equal to 25 mbps and less than 100 mbps
9	Greater than or equal to 100 mbps

Download Rates	
Rate Code	**Description**
2	Greater than 200 kbps and less than 768 kbps
3	Greater than or equal to 768 kbps and less than 1.5 mbps
4	Greater than or equal to 1.5 mbps and less than 3 mbps
5	Greater than or equal to 3 mbps and less than 6 mbps
6	Greater than or equal to 6 mbps and less than 10 mbps
7	Greater than or equal to 10 mbps and less than 25 mbps
8	Greater than or equal to 25 mbps and less than 100 mbps
9	Greater than or equal to 100 mbps

Technology Codes	
Technology Code	**Description**
1	Asymmetric xDSL
2	Symmetric xDSL
3	Other Wireline
4	Cable Modem
5	Optical Carrier (fiber to the end user)
6	Satellite
7	Terrestrial Fixed Wireless
8	Terrestrial Mobile Wireless
9	Electric Power Line
0	All Other

Technology Codes (Other) This code requires the entry of "0" for "Technology Code.	
Other Technology Code	**Description**
1	Optional Other Tech Value #1
2	