

## **INSTRUCTIONS FOR FIXED WIRELESS BROADBAND SERVICE PROVIDERS**

### **A. PROVIDERS WITH NO GIS CAPABILITY**

The following file(s) must be submitted:

- (1) the Excel workbook template provided on the CPUC website in accordance with the corresponding record formats (*filename: FIXED Wireless Workbook\_Template\_R8.xls*),

### **B. PROVIDERS WITH GIS CAPABILITY**

The following file(s) must be submitted:

- (1) the file geo-database template provided on the CPUC website in accordance with the corresponding attribute data formats (*filename: CA\_BB\_FIXED Wireless\_Filegeodatabase\_R8.gdb*)

**Note:** When you submit data using file geodatabase, please make sure that it contains the geometry detailing the provider's broadband availability areas and the corresponding attribute data.

**OR**

- (1) the shapefile, a geometry detailing the provider's broadband availability areas , **AND** the corresponding attribute data, as described in the succeeding pages.

**Middle-Mile and Backbone Connection Points:** There has been quite a bit of confusion regarding what exactly is meant by Middle Mile Connection points. Perhaps the best description is contained in the White House document from December 2009 titled Executive Office of the President National Economic Council Recovery Act Investments in Broadband: Leveraging Federal Dollars to Create Jobs and Connect America, a copy of this document is available at our website.

It describes Middle-Mile as follows:

“To get broadband service into homes and businesses, Internet service providers such as telephone, cable, and wireless companies must connect their local networks – known as the ‘last mile’ – to the Internet backbone. The ‘middle mile’ is the critical connection between the Internet backbone and the last-mile local networks. When residents initiate a connection from their home, school or work, the information flows from the last-mile network segment to the middle-mile infrastructure, which then directs the flow of traffic to the backbone network through an interconnection point. An Internet backbone provider then continues the transmission to a distant endpoint.”

Broadband providers must provide a list of connection points where the facilities provide connectivity between a broadband service provider's “last mile” network and another provider's network, including the Internet backbone. These data must be submitted using the workbook template, the spreadsheet titled “Connection Point Middle Mile\_R8.”

In addition to the basic middle mile information, we are asking you to provide answers to 3 key questions regarding middle-mile capacity as reflected in the record format. The answers to these questions will help policymakers pinpoint areas where additional subsidies for middle mile projects are warranted (such as from the California Advanced Services Fund or from the federal government).

## Data Format for Middle-Mile and Internet Backhaul Connection Points

Field Name	Description	Data Type	Field Length	Example
<b>Provider Identification Data</b>				
ProvName	Provider Name	Text	200	ABC Co.
DBAName	“Doing-business-as” name	Text	200	Superfone, Inc.
FRN	Provider FCC Registration Number – <a href="#">search here!</a> (ONLY numbers no other characters)	Text	10	0008402202
Ownership	Is the facility owned (0) or leased (1)?	Short Integer	2	0
<b>Broadband Technology Information</b>				
BHCapacity	Upstream capacity of the serving facility ( <a href="#">see MiddleMile BH Capacity</a> )	Short Integer	2	6
BHType	Type of upstream transport facility ( <a href="#">see Backhaul Type table</a> )	Short Integer	2	3
<b>Location Information</b>				
Latitude	Latitude of the Middle Mile Connection Point. Give at least 5 decimal points to ensure accuracy (value must be within 32 to 42)	Double		37.75001
Longitude	Longitude of the Middle Mile Connection Point. Give at least 5 decimal points to ensure accuracy (value must be within -114 to -124)	Double		-122.68001
ElevFeet	Elevation relative to grade to the nearest foot (positive integers indicate above grade, negative below grade).	Short Integer		12
StateAbbr	State Abbreviation	Text	2	CA
FullFIPSID	Current block identifier; a concatenation of Census 2010 state Federal Information Processing Standards (FIPS) code, Census 2010 county FIPS code, Census 2010 census tract code, and Census 2010 tabulation block number.	Text	16	060750160001015
<b>Middle-Mile Questions</b>				
ServLoc	Service/Locations : Is your ability to provide faster service or service to more locations currently limited by middle-mile transport capacity? Yes (1) No (0)	Text	1	1
Augment	Augmentation : Do you anticipate the need to augment middle-mile transport capacity in the next 12	Text	1	0

Field Name	Description	Data Type	Field Length	Example
	months at this location? Yes (1) No (0)			
Sufficient	If you anticipate the need for augmentation, is sufficient middle-mile transport capacity available for augmentation at this location? Yes (1) No (0) If you don't need to augment leave question blank.	Text	1	0

**Middle Mile BH Capacity Codes**  
(Use in BHCapacity field)

Code	Interconnection Data Rate
1	Multiple T1s and less than 40 mbps
2	Greater than 40 mbps and less than 150 mbps
3	Greater than 150 mpbs and less than 600 mbps
4	Greater than or equal to 600 mbps and less than 2.4 gbps
5	Greater than or equal to 2.4 gbps and less than 10 gbps
6	Greater than or equal to 10 gbps

**Backhaul Type Codes**  
(Use in BHType field)

Code	Name
1	Fiber
2	Copper
3	Hybrid fiber Coax (HFC)
4	Wireless

## Data Format for Wireless Service Availability Area

*Use Only in Connection with Wireless Services not provided to a Specific Address*

Field Name	Description	Data Type	Field Length	Example
<b>Provider Identification Data</b>				
ProvName	Provider Name	Text	200	ABC Co.
DBAName	“Doing-business-as” name	Text	200	Superfone, Inc.
FRN	Provider FCC Registration Number – <a href="#">search here!</a> ( <i>ONLY numbers no other characters</i> )	Text	10	0008402202
<b>Broadband Technology and Speed Data</b>				
TransTech	Category of technology for the provision of service <a href="#">(see Technology of Transmission table)</a>	Short Integer	2	10
Spectrum	Spectrum used to provide service <a href="#">(see Spectrum Used table)</a>	Short Integer	2	1
MaxAdDown	Speed tier code for the maximum advertised downstream speed available <a href="#">(see Download Speed Tier table)</a> <i>Note: Value must be equal or greater than MaxAdvUp speed</i>	Text	2	3
MaxAdvUp	Speed tier code for the maximum advertised upstream speed that is offered with the above maximum advertised downstream speed available <a href="#">(see Upload Speed Tier table)</a> <i>Note: Value must be equal or less than MaxAdvDown speed</i>	Text	2	2

Field Name	Description	Data Type	Field Length	Example
TypicDown	<p>Speed tier code for the downstream data transfer throughput rate that most subscribers to service at the maximum advertised downstream speed (above) can achieve consistently during expected periods of heavy network usage  <a href="#">(see Download Speed Tier table)</a>  <i>Note: Value must be equal or greater than TypicUp speed</i></p>	Text	2	7
TypicUp	<p>Speed tier code for the upstream data transfer throughput rate that most subscribers to service at the maximum advertised upstream speed (above) can achieve consistently during expected periods of heavy network usage  <a href="#">(see Upload Speed Tier table)</a>  <i>Note: Value must be equal or less than TypicDown speed</i></p>	Text	2	6
StateAbbr	State Abbreviation	Text	2	CA

**Technology of Transmission Codes**  
(Use in TransTech field)

<b>Code</b>	<b>Description</b>
10	Asymmetric xDSL
20	Symmetric xDSL
30	Other Copper Wireline
40	Cable Modem – DOCSIS 3.0
41	Cable Modem – Other
50	Optical Carrier/Fiber to the End User
60	Satellite
70	Terrestrial Fixed Wireless - Unlicensed
71	Terrestrial Fixed Wireless - Licensed
80	Terrestrial Mobile Wireless
90	Electric Power Line
0	All Other

**Spectrum Used Codes**  
(Use in Spectrum field)

<b>Code</b>	<b>Description</b>
1	is Cellular spectrum (824-849 MHz; 862-869) used to provide service
2	is 700 MHz spectrum (698-758 MHz; 775-788 MHz; 805-806 MHz) used to provide service
3	is Broadband Personal Communications Services spectrum (1850-1915 MHz; 1930-1995) used to provide service
4	is Advanced Wireless Services spectrum (1710-1755 MHz; 2100-2155) used to provide service
5	is Broadband Radio Service/Educational Broadband Service spectrum (2496-2690 MHz) used to provide service
6	is Unlicensed (including broadcast television “white spaces”) spectrum used to provide service
7	Specialized Mobile Radio Service (SMR) (817-824 MHz; 862-869 MHz; 896-901 MHz; 935-940 MHz)
8	Wireless Communications Service (WCS) spectrum (2305-2320 MHz; 2345-2360 MHz), 3650-3700 MHz
9	Satellite (L-band, Big LEO, Little LEO, 2 GHz)

**Download Speed Tier Codes**  
(Use in MaxAdvDown, TypicDown fields)

Code	Description
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 50 mbps
9	Greater than or equal to 50 mbps and less than 100 mbps
10	Greater than or equal to 100 mbps and less than 1 gbps
11	Greater than or equal to 1 gbps

**Upload Speed Tier Codes**  
(Use in MaxAdvUp, TypicUp fields)

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 50 mbps
9	Greater than or equal to 50 mbps and less than 100 mbps
10	Greater than or equal to 100 mbps and less than 1 gbps
11	Greater than or equal to 1 gbps



### Data Format for Base Station / Tower Locations

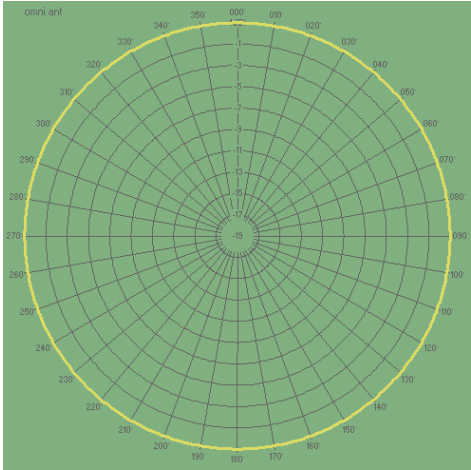
Field	Description	Data Type	Field Length	Example
<b>Provider Identification Data</b>				
ProvName	Provider Name	Text	200	ABC Co.
DBAName	“Doing-business-as” name	Text	200	Superfone, Inc.
FRN	Provider FCC Registration Number – <a href="#">search here!</a> (ONLY numbers no other characters)	Text	10	0008402202
<b>Base Station / Tower Location Data</b>				
PrimePop	Primary Population Center Covered by Service: Name of city, county	Text		Sutter Creek, Amador
Latitude	Latitude of the transmitter. Give at least 6 decimal points to ensure accuracy (value must be within 32 to 42)	Double		37.750105
Longitude	Longitude of the transmitter. Give at least 6 decimal points to ensure accuracy (value must be within -114 to -124)	Double		-122.680105
TransLoc	Transmission location. Example: water tank, tower, silo, rooftop, or other structure	Text		Tower
AntHeight	Height of base station antenna above ground in feet	Text		2000
Frequency	The transmitter’s frequency range in MHz for example 2400-2600. If only one value is given that value will be used as the minimum and maximum frequency.	Text	20	2400-2600
Output	The transmitter’s power in dBm,	Text	13	23
AntGain	Base station antenna gain in dBi	Double		15
AntPattern	Antenna/transmitter pattern (Omni, Cardio, Corner, Dipole, Ellipse, Yagi) ( <a href="#">see Wireless Propagation Antenna Patterns</a> )	Text	50	Yagi
AntAzimuth	Azimuth of sectorized antenna (compass orientation of the antenna center).	Text	5	45

Field	Description	Data Type	Field Length	Example
AntSecType	Type of sector antenna used. Enter 360 for an Omni antenna; others 60, 90, 120, 180, etc.	Text	5	360
AntTilt	The tilt angle the antenna/transmitter is pointing. 90 degrees is straight up, 0 degrees is horizontal and negative 90 degrees is straight down. Angle does not apply to Omni antennas.	Text	10	90
TransRad	The cell radius in miles.	Text	20	5
EquipType	Equipment type, make and model number of transmitting equipment.	Text	50	GT-5527 Digital MMDS Broadband transmitter
EquipStat	Equipment Status – licensed or unlicensed.	Text	50	Licensed
AvCustLoc	Average customer's antenna location: 1= indoor and 0=outdoor	Text	2	1
AvCustHt	Average customer's antenna height in feet from ground.	Double		20
RecThresh	Receiver threshold in negative (-) dBm <i>"A receiver threshold is the minimum value or set of values that must be exceeded before a receiver is allowed to use or access a wireless network. In this case it is the minimum microvolts that a receiver must receive before it can connect to the wireless network."</i>	Text	20	-87
TransTech	Category of technology for the provision of service <a href="#">(see Technology of Transmission table)</a>	Short Integer	2	71
Spectrum	Spectrum used to provide service <a href="#">(see Spectrum Used table)</a>	Short Integer	2	1
MaxAdDown	Speed tier code for the maximum advertised downstream speed available <a href="#">(see Download Speed Tier table)</a> Note: Value must be equal or greater than MaxAdvUp speed	Text	2	3
MaxAdvUp	Speed tier code for the maximum advertised upstream speed that is offered with the above maximum	Text	2	3

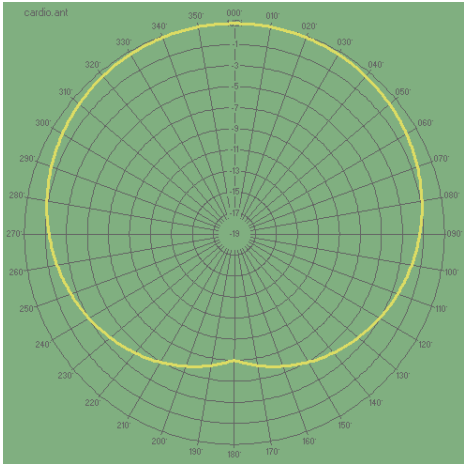
Field	Description	Data Type	Field Length	Example
	advertised downstream speed available <a href="#">(see Upload Speed Tier table)</a>			
TypicDown	Speed tier code for the downstream data transfer throughput rate that most subscribers to service at the maximum advertised downstream speed (above) can achieve consistently during expected periods of heavy network usage <a href="#">(see Download Speed Tier table)</a>	Text	2	6
TypicUp	Speed tier code for the upstream data transfer throughput rate that most subscribers to service at the maximum advertised upstream speed (above) can achieve consistently during expected periods of heavy network usage <a href="#">(see Upload Speed Tier table)</a>	Text	2	3
StateAbbr	State Abbreviation	Text	2	CA

# Wireless Propagation Antenna Patterns

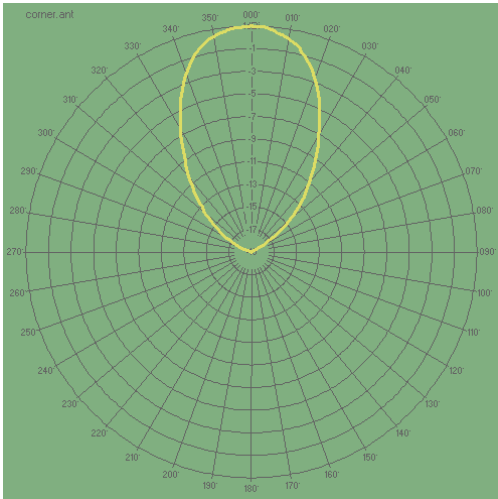
Omni



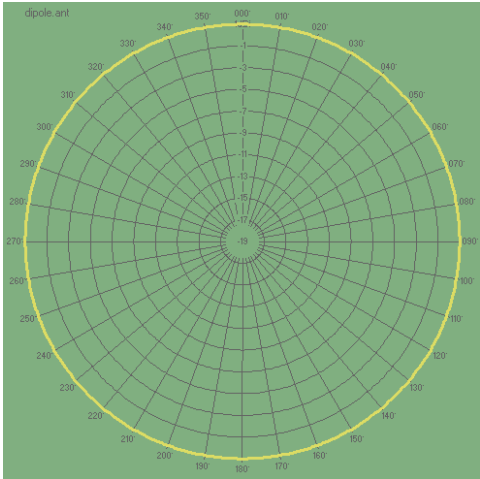
Cardio



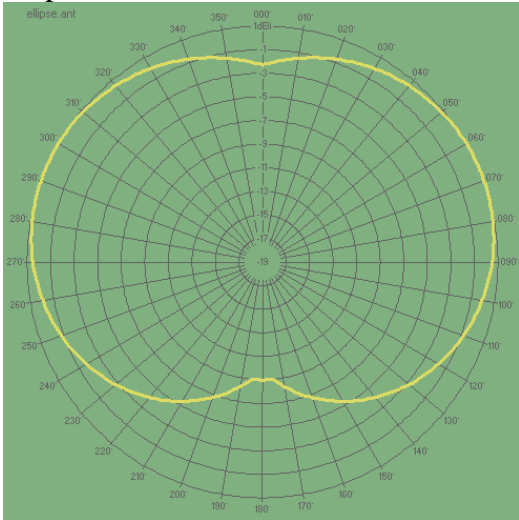
Corner



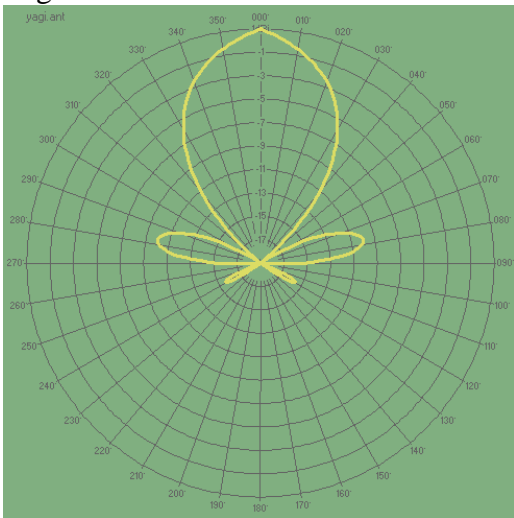
Dipole



## Ellipse



## Yagi



**Technology of Transmission Codes**  
(Use in TransTech field)

<b>Code</b>	<b>Description</b>
10	Asymmetric xDSL
20	Symmetric xDSL
30	Other Copper Wireline
40	Cable Modem – DOCSIS 3.0
41	Cable Modem – Other
50	Optical Carrier/Fiber to the End User
60	Satellite
70	Terrestrial Fixed Wireless - Unlicensed
71	Terrestrial Fixed Wireless - Licensed
80	Terrestrial Mobile Wireless
90	Electric Power Line
0	All Other

**Download Speed Tier Codes**  
(Use in MaxAdvDown, TypicDown fields)

<b>Code</b>	<b>Description</b>
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 50 mbps
9	Greater than or equal to 50 mbps and less than 100 mbps
10	Greater than or equal to 100 mbps and less than 1 gbps
11	Greater than or equal to 1 gbps

**Upload Speed Tier Codes**  
(Use in MaxAdvUp, TypicUp fields)

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 50 mbps
9	Greater than or equal to 50 mbps and less than 100 mbps
10	Greater than or equal to 100 mbps and less than 1 gbps
11	Greater than or equal to 1 gbps

**Spectrum Used Codes**  
(Use in Spectrum field)

Code	Description
1	is Cellular spectrum (824-849 MHz; 862-869) used to provide service
2	is 700 MHz spectrum (698-758 MHz; 775-788 MHz; 805-806 MHz) used to provide service
3	is Broadband Personal Communications Services spectrum (1850-1915 MHz; 1930-1995) used to provide service
4	is Advanced Wireless Services spectrum (1710-1755 MHz; 2100-2155) used to provide service
5	is Broadband Radio Service/Educational Broadband Service spectrum (2496-2690 MHz) used to provide service
6	is Unlicensed (including broadcast television “white spaces”) spectrum used to provide service
7	Specialized Mobile Radio Service (SMR) (817-824 MHz; 862-869 MHz; 896-901 MHz; 935-940 MHz)
8	Wireless Communications Service (WCS) spectrum (2305-2320 MHz; 2345-2360 MHz), 3650-3700 MHz
9	Satellite (L-band, Big LEO, Little LEO, 2 GHz)