

# Installation Instructions

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**Attention!** These installation instructions are intended for use by qualified professional technicians due to the complexity of the installation and compliance to national/local building and electrical codes.

## Overview

Your DISH 500+/DISH 1000+ antenna system consists of a reflector assembly and a separate DISH Pro LNBF kit.

These instructions guide you through the installation of a DISH Network DISH 500+ and DISH 1000+ antenna. The DISH 500+ is capable of receiving digital television signals from three satellite locations: 110°W (DBS), 118.7°W (FSS), and 119°W (DBS). The DISH 1000+ is capable of receiving digital television signals from four satellite locations: 110°W (DBS), 118.7°W (FSS), 119°W (DBS), and 129°W (DBS). These instructions cover wall mounting only. For other mounting options (for example, pole mounting, or non-penetrating mounting), see the Retailer Care Site at [retailer.echostar.com](http://retailer.echostar.com).

## Installation Considerations

While all DISH Network satellite receivers can be connected to the DISH 500+ or DISH 1000+, the following models cannot detect the 118.7°W or 129°W locations: 1000, 2000, 3000, 4000, 5000, JVC-DVHS (IRR), and the DishPlayer 7100/7200.

This installation supports Legacy receivers, but restrictions based on the connected switch must be followed. Refer to the Installation Instructions for the switch used in your installation. Legacy receivers are receivers which do not have the DISH Pro or DISH Pro Plus logo (shown below).

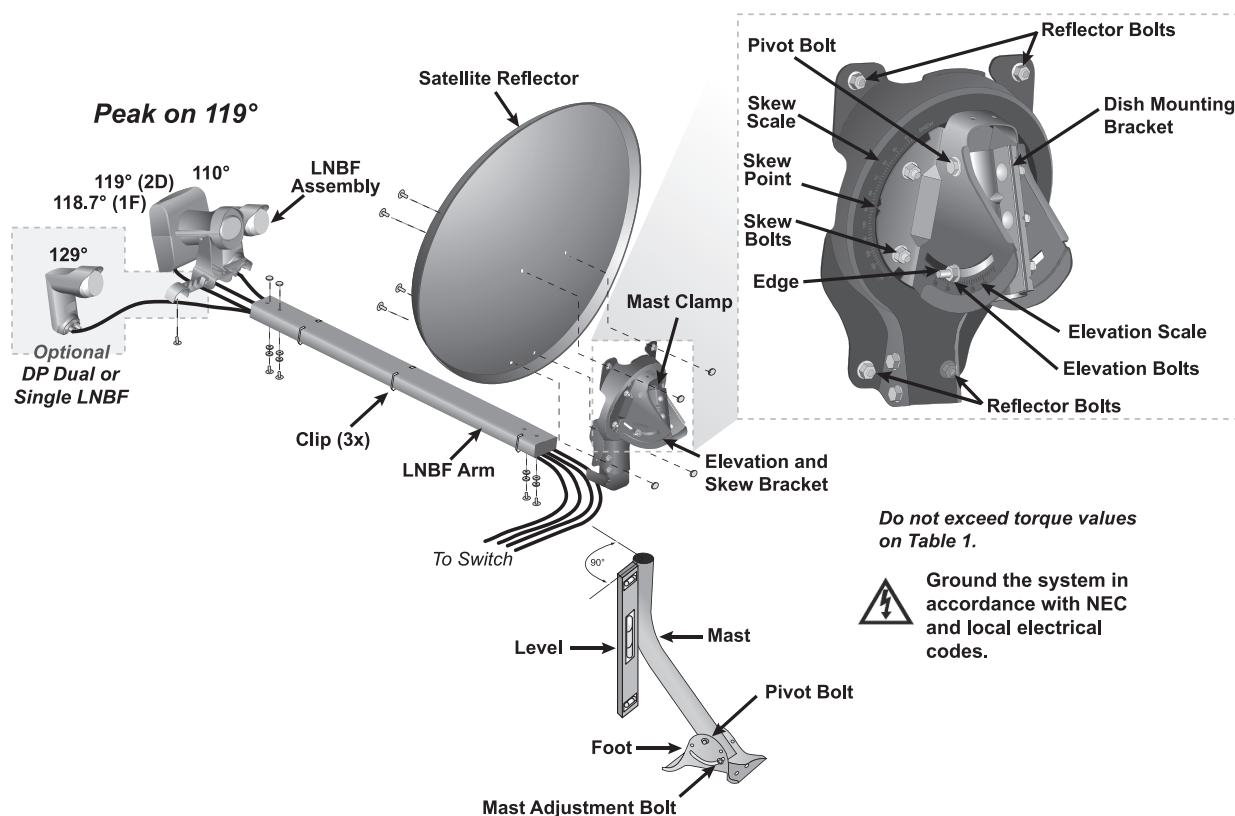


## About the System

The DISH Pro 500+ LNBF Assembly provides reception from the 110°W, 118.7°W, and 119°W orbital locations. Use a DISH Pro 34 (DP34) Switch or DISH Pro Plus 44 (DPP44) switch with the DISH 500+.

The DISH Pro 1000+ LNBF Assembly provides reception from the 110°W, 118.7°W, 119°W, and 129°W orbital locations. Use a DPP44 switch with the DISH 1000+. The DP 1000+ LNBF Assembly is created by adding a bracket to mount a separate DP Dual or DP Single to the DP 500+ LNBF Assembly to support the 129°W orbital location.

## Quick Installation Instructions



**Figure 1: DISH 500+ and DISH 1000+ Antenna Installation Overview**

1. Find Azimuth/Elevation/Skew angles for the DISH 500+ or DISH 1000+ and your location (instructions on page 3 and tables on page 9).
2. Find a location for the dish antenna with a clear line of sight and a sturdy mounting surface (page 3, step 1).
3. Mount the mast, making sure it is absolutely vertical (page 3, steps 2 and 3).
4. Assemble the dish antenna, setting the skew and elevation angles in the process (page 3, steps 4-6).
5. Mount the dish antenna on the mast and point the dish to the azimuth angle (page 3, step 7).
6. For DISH 1000+ only, attach the 1000+ LNBF bracket and a separate DP LNBF to the DP 500+ LNBF Assembly (page 4, step 8).
7. Run cables between the dish antenna and the switch, and from the switch to the receiver(s) (page 5, step 1).
8. Using a peaking meter attached to the DISH Pro DBS/FSS Dual Band LNBF **PORT 2D** (119°), peak the dish on 119°W for maximum strength. Tighten all bolts (see Table 1) and re-confirm maximum signal (page 5, steps 2-5).
9. Connect the switch cables from the DISH Pro DBS/FSS Dual Band LNBF's **PORT 2D** (119°) and **PORT 1F** (118.7°), and the DP Dual(s) to the switch. Attach cables to LNBF Arm using included cable clips (page 6, step 6).
10. Connect the switch to the receiver using the Installation Instructions included with the switch (page 6, step 8). Some restrictions apply when connecting Legacy receivers (page 7, step 9).
11. Run **Check Switch** test and confirm 110°W and 119°W reception (page 7, steps 9 and 10). You may or may not see the 118.7°W or 129°W locations until steps 12 and 13, below, are completed.
12. Take a software download, if you didn't already (page 7, step 11).
13. Run a **Check Switch** test and confirm 110°W, 118.7°W, 119°W, and 129°W (for DISH 1000+) reception (page 8, step 12).
14. Fine-tune the adjustment of the dish on 118.7°W using the receiver's **Point Dish** screen. Confirm reception of 110°W and 119°W, and 129°W (for DISH 1000+) after fine-tuning (page 8, step 13).
15. Install any additional receiver(s), if necessary (page 6-8, steps 7-12).

## Locating the Dish Antenna

Use the *Dish Pointing Angles* starting on page 9 to find the azimuth, elevation, and skew angles using the ZIP code from your location. DISH 500+ and DISH 1000+ use slightly different peaking angles. Ensure you choose the correct set of angles for the dish you are installing. Write the angles in the space provided below.

**Azimuth:** \_\_\_\_\_ **Elevation:** \_\_\_\_\_ **Skew:** \_\_\_\_\_

Using these azimuth and elevation angles, find a mounting location for the satellite dish, which can be pointed towards the satellites located at these angles. Use a compass and the azimuth angle to find the direction along the horizon that the dish should be pointed. Then use the elevation angle to find out how high the satellites are in the sky from your location. Make sure nothing blocks the line of sight between the dish and the satellites. Make sure this line of sight will not be blocked by future growth of nearby trees or other foliage. Also make sure your mounting location provides sufficient clearance to rotate the reflector as needed to point toward the satellites.

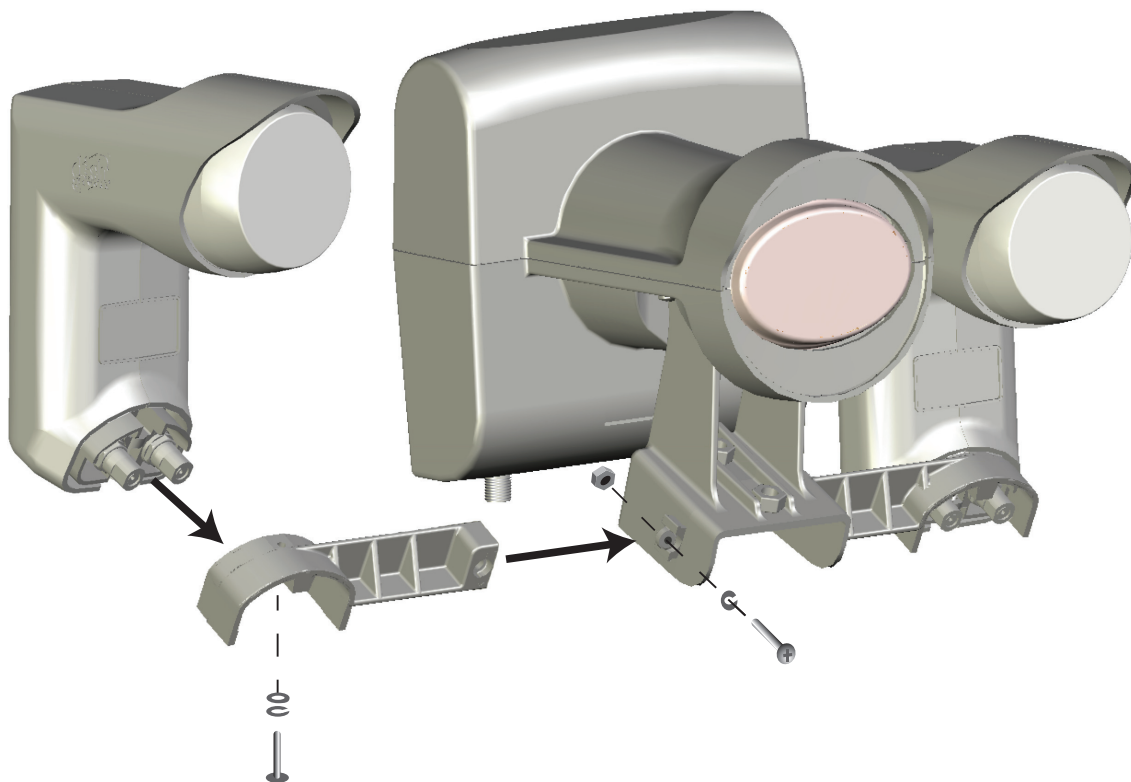
## Assembling and Mounting the Dish

Follow these instructions to assemble the satellite dish, mount it, and point it in the direction of the satellites.

- 1** Using the azimuth and elevation angles, find a location for the satellite dish which can be pointed towards the satellites located at these angles. Make sure nothing blocks the line of sight between the dish and the satellites.
- 2** Mount the mast to a solid surface so that the dish antenna cannot move or be bumped out of adjustment. Keep in mind that physical and environmental conditions can block your satellite dish's ability to receive a clear satellite signal. Never mount to a tree or a public utility pole.
- 3** Align the top part of the mast so that it is absolutely vertical. If the top part of the mast is off vertical by only a few degrees, it will be difficult or maybe even impossible for you to find the satellites. Take at least two readings with a level, on the upper mast, that are 90 degrees apart from one another (see Figure 1).
- 4** Assemble the satellite dish as shown in Figure 1, except do not attach the LNBF Assembly at this time.
- 5** Loosen the four skew bolts and set the skew by rotating the dish mounting bracket to align the mark with the required angle on the skew scale which you wrote down above. Tighten the skew bolts securely to keep the dish from rotating. See Table 1 for the required torque values. **After the skew is set, do not try to fine-tune the skew angle when aiming the dish.**
- 6** Set the elevation by loosening then tilting the dish mounting bracket to align the edge with the required angle on the elevation scale. Tighten the elevation bolts snugly to prevent movement.
- 7** Slide the dish assembly down onto the mast. Make sure the pivot bolt rests on the top of the mast and that the mast is fully inserted into the tab. Turn the dish assembly so that it points in the general direction of the satellites, using the azimuth angle you wrote above.

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For DISH 1000+ installations, attach a separate DP Dual (or DP Single) to the 1000+ LNBF bracket using the included washers and screws. Slide the bracket onto the DP 500+ LNBF Assembly. Place the nut into the retaining feature on the back of the assembly. Insert the screw from the front of the assembly and tighten according to the torque value (see Table 1 on page 6) to attach the bracket. See Figure 2.





**Figure 2: Optional bracket for attaching DP Dual (or DP Single) for 129°W**

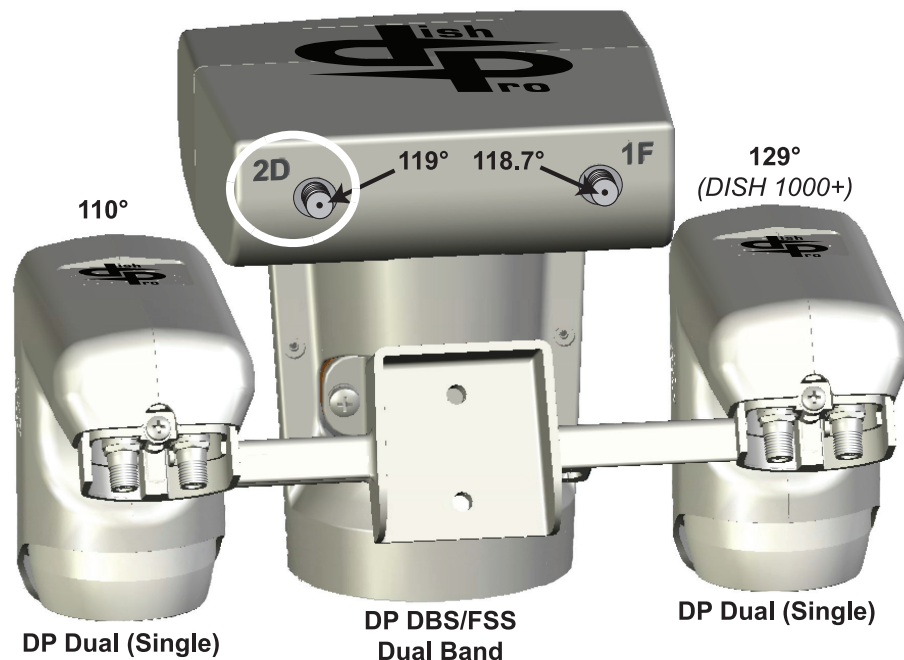
## Installing the Receivers

Use the steps below while referring to Figure 1 for this installation.

- 1** Run RG-6 coaxial cables between the dish antenna and the switch, and from the switch to the receiver location(s) using the following cable requirements. Account for grounding or other devices and in-home cabling.
  - RG-6 coaxial cables rated for at least 950 to 2150 MHz must be used in this installation. Do not use existing cables such as RG-59. These other cables may cause signal loss. Also, be sure that any outdoor connections are made using waterproof F-connectors rated for 2150 MHz or greater.
  - Follow the Installation Instructions included with the switch for cable length limitations.

 The center conductor must not extend past the rim of the F-connector more than the thickness of a nickel.

 Tighten all outdoor cable connections up to the recommended manufacturer torque value to ensure seal against moisture. Damage caused by over-tightening is *not* covered by the limited warranty.
- 2** Mount the LNB Assembly on the antenna feed arm as shown on Figure 1 (see page 2).
- 3** Connect a temporary cable to a peaking meter. Connect the temporary cable to **PORT 2D** (119°) of the DISH Pro DBS/FSS Dual Band LNB. **PORT 2D** provides signal from the 119°W satellite, while **PORT 1F** provides signal from the 118.7°W satellite. See Figure 3.



**Figure 3: Bottom view of LNB Assembly showing Port 2D (119°) and 1F (118.7°) on DBS/FSS Dual Band LNB**

**4** Peak the dish for the strongest possible signal on the 119°W satellite signal using the azimuth and elevation settings you wrote on page 3. Do not adjust the skew.

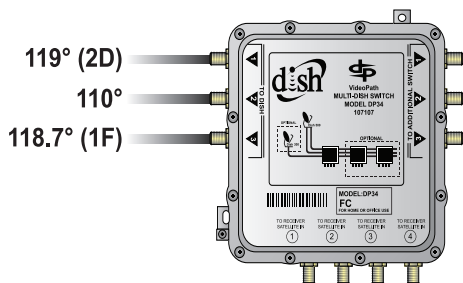
**Note:** If you cannot find the 119°W signal, try adjusting the elevation up or down one or two degrees. Ensure you are peaking the dish using transponder 11 or higher.

**5** With the peaking meter still connected, tighten the mast clamp and elevation bolts using the torque values listed in the following table. Re-confirm signal strength after tightening the bolts.

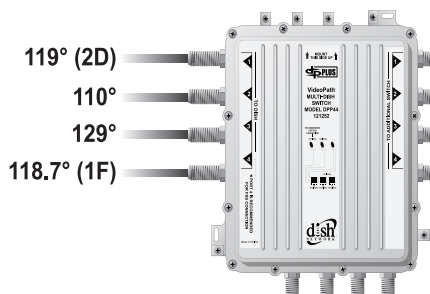
**Table 1: Torque Values**

Location	Torque Value (ft-lbs)
Mast-foot pivot through bolt (ensure no mast deformation occurs during tightening)	4.5
Mast-foot locking nuts	10
Reflector mounting bolts	8
Clamp locking bolts	10
Clamp pivot through bolt (ensure no mast deformation occurs during tightening)	4.5
Elevation adjustment locking nuts	10
Skew adjustment locking nuts	8
Feed arm to skew bracket	4
Feed arm to DISH 500+ LNBF bracket	2
LNBF and bracket attachment hardware	2

**6** Remove the temporary cable used for peaking the dish. Connect a cable from **PORT 2D** (119°) to **PORT 1** of the switch. Connect **PORT 1F** (118.7°) of the DBS/FSS Dual Band LNBF and **PORT 1** on the DP Dual(s) (or DP Singles) to the switch as shown below. Attach the cables to the bottom of the LNBF arm using the included cable clips. See Figure 4 for DISH 500+ recommended connection order to a DP34 switch, and Figure 5 for DISH 1000+ recommended connection order to a DPP44 switch. Refer to the switch's Installation Instructions for additional details.



**Figure 4: DISH 500+ to DP34 switch**



**Figure 5: DISH 1000+ to DPP44 switch**

**7** Connect the receiver(s) to the TV(s) and display the **Point Dish** screen (for most receivers, press MENU-6-1-1 on the remote control).

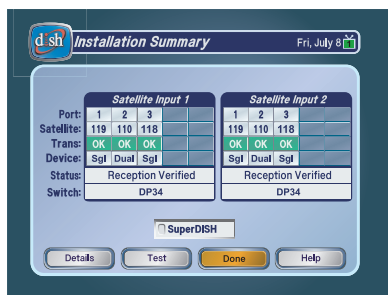
**8** Connect the cable(s) from the switch's **PORT 1** (or **PORT 2**, **PORT 3** or **PORT 4**, as applicable) to a satellite receiver's **SATELLITE IN** connection(s).



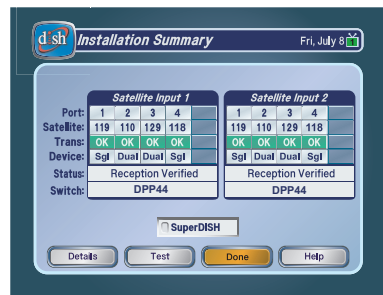
Tighten all indoor coaxial cable connections to the receiver *only* by hand. If you use a wrench, you may over-tighten the connections and damage your equipment.

- 9 From the **Point Dish** screen, run **Check Switch**. When the **Check Switch** procedure finishes, you should see an **Installation Summary** screen similar to the one shown below. Make sure the summary screen shows reception from the 119°W and 110°W satellites on all available satellite tuners. Models 2800, 6000 and 721 may display the 118°W orbital location as 119K. This identification is OK.

**Note:** On some models, you might not see signal from 118°W and/or 129°W until after you take a software download and run a check switch in steps 11 and 12.



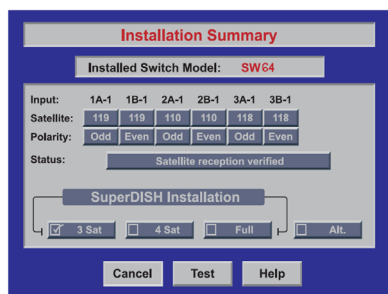
**DISH 500+ Installation Summary**



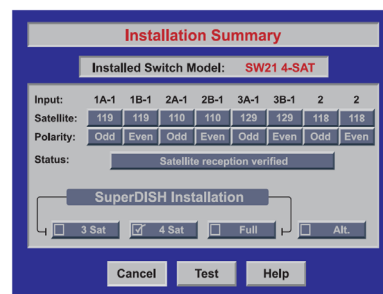
**DISH 1000+ Installation Summary**

The summary screen below is similar to what should be shown for a Legacy receiver connected to the DISH 500+ or DISH 1000+. Make sure the summary screen shows reception from 110°W and 119°W satellites on all available satellite tuners.

**Note:** Legacy receiver models 1000, 2000, 3000, 4000, 5000, 7100, 7200 and JVC DVHS (IRR) cannot receive signals and will not detect signal from the 118°W and 129°W satellite locations.



**DISH 500+ Installation Summary**



**DISH 1000+ Installation Summary**

- 10 Exit the **Installation Summary** screen and display the **Point Dish** screen. Make sure the signal strength bar is green and locked for the 119°W, 110°W, 118°W and 129°W (for DISH 1000+) satellites.

**Note:** You might not see signal from 118°W and/or 129°W until after you take a software download and run a check switch in steps 11 and 12.

- 11 Exit the **Point Dish** screen and follow the on-screen instructions for taking a receiver software download. Do not disturb the receiver during the process of downloading software. If exiting the **Point Dish** screen does not start the download process, turn off the receiver for at least 20 minutes (on most receivers) to allow the receiver to take a software download.

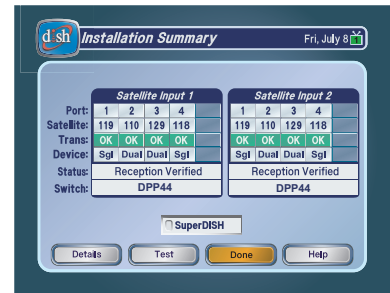


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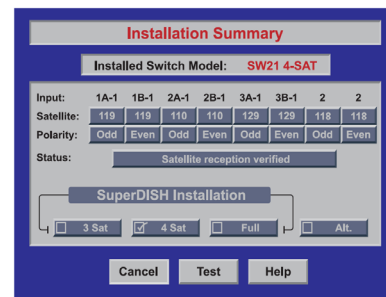
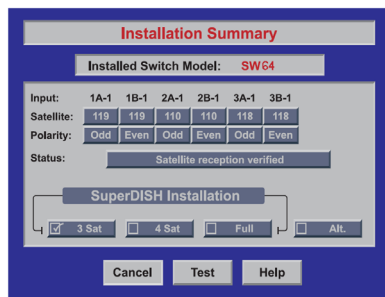
Run **Check Switch** again and confirm reception for 110°W, 119°W and 118°W satellites if using DISH 500+, and for 110°W, 119°W, 129°W and 118°W satellites if using DISH 1000+.



DISH 500+ Installation Summary



DISH 1000+ Installation Summary



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Using the receiver's **Point Dish** screen, fine-tune the adjustment of the dish on 118°W, checking transponders 2, 7, 18, and 23. After adjusting for maximum signal on 118°W, confirm reception from 110°W and 119°W for DISH 500+, and from 110°W, 119°W, and 129°W for DISH 1000+. Refer to the torque values on page 6.

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If installing an additional receiver, follow steps 7-12. Make sure the summary screen shows reception from the 110°W, 119°W, and 118°W satellites for DISH 500+, and from the 110°W, 119°W, 129°W, and 118°W satellites for DISH 1000+.



# Dish Pointing Angles

Use the tables below as follows:

1. Find the ZIP code for your location.
2. Find the row that contains the ZIP code or the first three digits of the ZIP code. For example, the correct row for ZIP code 80112 is 801XX.
3. Write down the number in the AZ column in the “Azimuth” blank on page 3.
4. Write down the number in the EL column in the “Elevation” blank on page 3.
5. Write down the number in the SK column in the “Skew” blank on page 3. Note: The skew varies if using a DISH 500+ or DISH 1000+. Ensure you pick the correct skew for the dish antenna you are installing.

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
00001	117	15	69	71
00002	120	12	77	78
00003	117	17	67	69
00004	120	16	71	73
00006	121	15	73	76
00007	116	9	77	78
00008	140	26	79	83
00010	115	11	69	71
00011	121	17	71	74
00013	162	45	83	89
00019	160	43	83	89
00020	164	46	84	90
00022	155	44	79	85
00025	160	42	83	89
00028	160	44	82	88
00031	161	49	81	88
00032	164	49	82	89
00033	162	44	83	89
00034	156	42	80	86
00035	158	42	82	87
00037	157	44	80	86
00038	158	43	81	87
00039	156	43	80	86
00040	164	46	83	90
00044	162	45	83	90
00047	158	44	81	87
00048	158	44	80	86
00049	155	42	80	85
00050	156	42	80	85
00051	161	45	83	89
00052	161	45	83	89
00054	155	42	79	85
00055	156	42	80	86
00058	164	46	83	90
00065	161	44	82	88
00087	243	37	136	140
00097	244	39	139	142
00116	222	45	124	129

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
00119	225	44	126	131
00120	225	44	126	131
00124	222	44	123	128
00125	257	18	123	126
00126	255	20	124	126
00127	259	19	126	128
00128	254	20	124	126
00130	258	18	125	127
00132	257	19	124	126
00133	256	20	124	127
00134	259	18	126	128
00135	257	19	124	126
00136	258	19	124	126
00137	259	18	124	126
00138	258	18	125	127
00139	255	20	125	127
00140	256	20	124	127
00141	259	18	125	127
00145	256	19	125	127
00147	256	20	125	127
00148	259	18	124	126
00151	260	18	126	128
00152	248	27	129	131
00155	246	28	128	131
00156	246	28	128	131
00157	246	28	128	131
00159	254	22	128	130
00160	216	29	110	113
00161	214	29	109	113
00164	205	30	106	110
00165	206	30	106	110
00166	206	30	106	110
00168	255	21	125	127
00169	254	21	125	127
00170	254	20	124	127
00172	254	21	125	127
00173	254	21	125	127
00174	254	21	125	127

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
00176	254	21	125	127
00177	254	21	125	127
00179	254	21	125	127
00180	254	21	125	127
00181	254	21	125	127
00182	254	21	125	127
00183	254	21	125	127
00184	254	21	125	127
00185	254	21	125	127
00186	254	21	124	127
00187	254	20	124	127
00188	214	51	120	126
00189	214	50	119	126
00190	253	21	124	126
00191	254	21	124	126
00192	254	21	124	126
00195	153	36	81	86
00198	121	17	73	75
00199	179	51	93	100
00200	179	52	92	100
00201	183	51	96	104
00203	166	49	84	91
00205	165	47	84	91
00206	165	50	83	91
00214	163	50	81	89
00215	164	51	82	89
00216	164	51	82	90
00217	165	48	84	91
00218	160	44	82	88
00219	190	43	101	107
00222	241	37	134	137
00223	244	38	138	142
00225	243	37	136	139
00226	244	39	139	143
00228	245	38	139	142
00229	240	37	134	138
00232	241	39	136	140
00234	244	38	138	141
00236	167	40	88	94
00238	223	44	123	129
00241	213	29	109	112
00243	227	42	127	131
00246	174	35	93	97
00250	189	47	101	107
00252	191	50	102	109
00255	206	44	111	117
00257	155	39	80	86

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
00258	157	39	82	87
00259	157	41	81	87
00260	156	38	83	88
00266	177	43	94	100
00267	157	34	84	88
00268	160	37	85	90
00270	158	37	84	89
00276	176	38	94	99
00277	158	34	85	89
00278	157	39	82	87
00279	176	38	93	99
00280	162	45	83	89
00281	176	41	93	99
00282	177	41	93	99
00283	238	28	122	125
00284	252	21	124	126
00285	250	25	127	129
00286	245	31	131	134
00401	250	24	126	129
00501	251	24	127	130
00544	251	24	127	130
006XX	268	28	156	157
007XX	268	28	156	157
008XX	270	26	157	158
009XX	268	27	156	157
010XX	252	23	126	129
011XX	252	23	126	129
012XX	251	23	126	128
013XX	252	23	126	128
014XX	253	22	126	129
015XX	253	22	126	129
016XX	253	22	126	129
017XX	254	22	127	129
018XX	254	22	126	129
019XX	255	22	127	129
020XX	255	22	127	129
021XX	254	22	127	129
022XX	254	22	127	129
023XX	255	22	127	130
024XX	255	22	127	129
025XX	255	22	128	130
026XX	256	22	128	130
027XX	254	22	127	130
028XX	253	23	127	130
029XX	253	22	127	130
030XX	254	22	126	128
031XX	254	22	126	128

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
032XX	253	22	125	128
033XX	254	22	126	128
034XX	252	22	126	128
035XX	254	21	124	127
036XX	252	22	125	128
037XX	253	22	125	127
038XX	254	21	126	128
039XX	254	21	126	128
040XX	255	21	126	128
041XX	256	21	126	128
042XX	255	20	125	128
043XX	257	20	126	128
044XX	258	19	125	127
045XX	256	20	126	128
046XX	259	19	126	128
047XX	259	18	124	126
048XX	257	20	126	128
049XX	257	20	125	127
050XX	253	22	125	127
051XX	252	22	125	128
052XX	251	23	125	128
053XX	252	23	125	128
054XX	252	22	124	126
055XX	254	22	126	129
056XX	252	22	124	127
057XX	251	22	124	127
058XX	252	21	124	126
059XX	254	21	124	127
060XX	251	23	126	129
061XX	251	23	126	129
062XX	253	23	127	129
063XX	253	23	127	130
064XX	251	24	127	129
065XX	251	24	127	129
066XX	251	24	127	129
067XX	251	24	126	129
068XX	250	24	127	129
069XX	250	24	127	129
070XX	249	25	127	129
071XX	249	25	127	129
072XX	249	25	127	129
073XX	250	25	127	129
074XX	249	25	126	129
075XX	249	25	126	129
076XX	250	25	127	129
077XX	250	25	127	130
078XX	248	25	126	129

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
079XX	249	25	126	129
080XX	248	26	127	130
081XX	248	26	127	130
082XX	249	26	128	131
083XX	248	26	127	130
084XX	249	26	128	131
085XX	248	25	127	130
086XX	248	26	127	130
087XX	249	25	127	130
088XX	248	25	127	129
089XX	248	25	127	129
100XX	250	25	127	129
101XX	250	25	127	129
102XX	250	25	127	129
103XX	250	25	127	129
104XX	250	25	127	129
105XX	250	24	126	129
106XX	250	24	127	129
107XX	250	25	127	129
108XX	250	24	127	129
109XX	252	25	126	129
110XX	250	25	127	130
111XX	250	25	127	129
112XX	250	25	127	130
113XX	250	25	127	129
114XX	250	25	127	130
115XX	250	25	127	130
116XX	250	25	127	130
117XX	250	24	127	130
118XX	250	24	127	130
119XX	252	24	127	130
120XX	250	24	125	128
121XX	250	24	125	128
122XX	250	23	125	128
123XX	250	23	125	127
124XX	249	24	125	128
125XX	250	24	126	128
126XX	249	24	126	129
127XX	248	25	125	128
128XX	249	23	124	127
129XX	250	22	123	126
130XX	245	25	123	126
131XX	245	25	123	126
132XX	245	25	123	126
133XX	247	24	124	126
134XX	247	24	124	126
135XX	247	24	124	127

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
136XX	247	24	123	125
137XX	246	25	124	127
138XX	246	25	124	127
139XX	246	25	124	127
140XX	241	26	122	125
141XX	241	26	122	125
142XX	241	26	122	125
143XX	241	26	122	125
144XX	243	26	123	125
145XX	243	26	123	126
146XX	243	26	122	125
147XX	241	27	122	125
148XX	244	26	123	126
149XX	244	26	124	127
150XX	239	29	123	126
151XX	239	29	123	127
152XX	239	29	123	127
153XX	239	29	124	127
154XX	240	29	124	127
155XX	241	28	125	128
156XX	240	29	124	127
157XX	241	28	124	127
158XX	241	28	123	126
159XX	241	28	124	127
160XX	239	28	123	126
161XX	238	29	122	126
162XX	240	28	123	126
163XX	240	28	123	126
164XX	238	28	122	125
165XX	238	28	122	125
166XX	242	28	124	127
167XX	242	27	123	126
168XX	243	27	124	127
169XX	244	26	124	127
170XX	244	27	125	128
171XX	244	27	126	128
172XX	244	28	125	128
173XX	244	27	126	129
174XX	245	27	126	129
175XX	246	27	126	129
176XX	246	27	126	129
177XX	244	26	124	127
178XX	245	27	125	128
179XX	246	26	125	128
180XX	247	26	126	129
181XX	247	26	126	129
182XX	247	26	125	128

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
183XX	247	25	126	128
184XX	247	25	125	128
185XX	247	25	125	128
186XX	246	26	125	128
187XX	247	26	125	128
188XX	246	25	125	127
189XX	248	26	126	129
190XX	248	26	127	130
191XX	248	26	127	130
192XX	248	26	127	130
193XX	246	26	127	129
194XX	248	26	126	129
195XX	246	26	126	129
196XX	246	26	126	129
197XX	247	27	127	130
198XX	247	26	127	130
199XX	247	27	128	131
200XX	245	28	127	130
201XX	244	28	126	129
202XX	245	28	127	130
203XX	245	28	127	130
204XX	245	28	127	130
205XX	245	28	127	130
206XX	245	28	127	130
207XX	245	28	127	130
208XX	245	28	126	129
209XX	245	28	127	130
210XX	245	27	127	129
211XX	245	27	126	129
212XX	245	27	127	130
214XX	245	28	127	130
215XX	242	29	125	128
216XX	247	27	127	130
217XX	244	28	126	129
218XX	248	27	128	131
219XX	246	27	127	130
220XX	244	28	127	130
221XX	244	28	127	130
222XX	245	28	127	130
223XX	245	28	127	130
224XX	245	28	128	131
225XX	245	28	128	131
226XX	243	29	126	129
227XX	243	29	126	130
228XX	241	29	126	129
229XX	242	30	127	130
230XX	245	29	128	131

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
231XX	245	29	128	131
232XX	244	29	128	131
233XX	247	28	129	132
234XX	247	28	129	132
235XX	247	29	129	132
236XX	247	29	129	132
237XX	247	29	129	132
238XX	245	29	128	131
239XX	243	30	128	131
240XX	240	31	126	130
241XX	240	31	126	130
242XX	236	33	125	129
243XX	238	32	126	129
244XX	241	30	126	129
245XX	241	30	127	130
246XX	236	32	125	129
247XX	238	32	125	129
248XX	237	32	125	129
249XX	239	31	126	129
250XX	237	31	124	128
251XX	237	31	124	128
252XX	237	31	124	127
253XX	237	31	124	128
254XX	243	28	126	129
255XX	235	32	124	127
256XX	236	32	124	128
257XX	235	32	124	127
258XX	237	31	125	128
259XX	238	31	125	129
260XX	238	29	123	126
261XX	237	31	124	127
262XX	239	30	125	128
263XX	238	30	124	127
264XX	238	30	124	127
265XX	239	30	124	127
266XX	238	31	125	128
267XX	241	29	125	128
268XX	241	29	125	129
270XX	239	32	127	131
271XX	239	32	127	131
272XX	241	32	128	131
273XX	241	32	128	131
274XX	241	32	128	131
275XX	242	31	129	132
276XX	242	31	129	132
277XX	242	31	128	132
278XX	244	30	129	133

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
279XX	246	29	130	133
280XX	238	33	128	131
281XX	239	33	128	131
282XX	238	33	128	131
283XX	242	32	129	133
284XX	244	32	131	134
285XX	245	30	131	134
286XX	237	33	127	130
287XX	235	34	126	130
288XX	236	34	126	130
289XX	233	35	126	129
290XX	239	34	129	133
291XX	239	34	129	133
292XX	239	34	129	133
293XX	237	34	127	131
294XX	241	34	131	134
295XX	242	33	130	133
296XX	236	35	127	131
297XX	239	33	128	132
298XX	238	35	129	133
299XX	240	35	131	134
300XX	233	36	127	130
301XX	232	37	126	130
302XX	233	37	127	131
303XX	233	36	127	131
304XX	238	36	130	134
305XX	234	35	126	130
306XX	235	36	127	131
307XX	231	36	125	129
308XX	237	35	129	132
309XX	238	35	129	132
310XX	236	37	129	132
311XX	233	36	127	131
312XX	235	36	128	132
313XX	239	35	131	135
314XX	239	35	131	135
315XX	238	36	131	135
316XX	237	37	131	134
317XX	235	38	129	133
318XX	233	38	128	132
319XX	233	38	128	132
320XX	239	37	132	136
321XX	241	37	134	138
322XX	240	37	133	136
323XX	236	39	130	134
324XX	233	40	129	133
325XX	231	41	128	132

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
326XX	239	38	133	137
327XX	241	37	135	138
328XX	242	37	135	139
329XX	243	37	136	140
330XX	244	38	139	142
331XX	245	38	139	142
332XX	245	38	139	142
333XX	245	38	139	142
334XX	245	38	138	141
335XX	241	38	135	138
336XX	240	39	135	138
337XX	239	39	135	139
338XX	241	38	135	139
339XX	242	39	137	141
342XX	240	39	135	139
344XX	240	38	134	137
346XX	239	39	134	138
347XX	241	38	135	138
349XX	244	37	137	141
350XX	229	38	125	129
351XX	229	38	125	129
352XX	228	38	125	129
354XX	228	39	124	129
355XX	227	39	124	128
356XX	227	38	123	127
357XX	229	37	124	128
358XX	229	37	124	128
359XX	230	37	125	129
360XX	231	39	127	131
361XX	230	39	127	131
362XX	231	38	126	130
363XX	233	39	128	132
364XX	230	40	127	131
365XX	228	41	126	131
366XX	228	41	127	131
367XX	229	40	126	130
368XX	232	38	127	131
369XX	227	40	125	129
370XX	228	36	122	126
371XX	228	36	122	126
372XX	228	36	122	126
373XX	231	36	124	128
374XX	231	36	125	129
375XX	222	39	120	125
376XX	236	33	126	129
377XX	233	34	125	128
378XX	233	34	125	128

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
379XX	233	35	125	129
380XX	223	39	120	125
381XX	222	39	120	125
382XX	223	37	120	125
383XX	224	38	121	126
384XX	227	37	123	127
385XX	230	35	123	127
386XX	222	39	121	126
387XX	222	41	121	126
388XX	225	39	122	127
389XX	223	40	122	126
390XX	223	41	123	127
391XX	223	42	123	128
392XX	224	42	123	128
393XX	226	41	124	129
394XX	225	42	125	129
395XX	226	42	126	131
396XX	223	43	123	128
397XX	225	40	123	127
399XX	233	36	127	130
400XX	230	34	122	125
401XX	228	35	121	125
402XX	228	34	121	125
403XX	232	33	123	126
404XX	231	34	123	127
405XX	231	33	122	126
406XX	230	34	122	126
407XX	232	34	124	127
408XX	234	33	124	128
409XX	233	34	124	128
410XX	231	33	122	125
411XX	234	32	123	127
412XX	235	32	124	127
413XX	233	33	124	127
414XX	233	33	124	127
415XX	235	32	125	128
416XX	235	33	124	128
417XX	234	33	124	128
418XX	234	33	124	128
420XX	224	37	120	124
421XX	229	35	122	126
422XX	227	36	121	125
423XX	226	35	121	125
424XX	225	36	120	124
425XX	231	34	123	127
426XX	231	35	123	127
427XX	229	35	122	126

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
430XX	233	31	122	125
431XX	234	31	122	126
432XX	233	31	122	125
433XX	233	31	121	124
434XX	234	30	120	124
435XX	231	31	120	123
436XX	232	30	120	123
437XX	236	30	123	126
438XX	235	30	122	126
439XX	237	30	123	126
440XX	236	29	121	125
441XX	236	29	121	125
442XX	236	29	122	125
443XX	236	29	122	125
444XX	237	29	122	125
445XX	238	29	122	126
446XX	236	30	122	125
447XX	236	29	122	125
448XX	234	30	121	124
449XX	234	30	121	125
450XX	231	32	121	125
451XX	232	32	122	125
452XX	231	33	121	125
453XX	231	32	121	124
454XX	231	32	121	125
455XX	231	32	121	125
456XX	234	32	123	126
457XX	236	31	123	127
458XX	230	31	120	124
459XX	231	33	121	125
460XX	227	33	119	123
461XX	227	33	120	123
462XX	227	33	119	123
463XX	225	32	117	121
464XX	225	32	117	121
465XX	227	32	118	122
466XX	227	32	118	121
467XX	228	32	119	123
468XX	228	32	119	123
469XX	227	32	119	122
470XX	230	33	121	125
471XX	228	34	121	125
472XX	228	33	120	124
473XX	229	32	120	124
474XX	227	34	120	124
475XX	226	35	120	124
476XX	226	35	120	124

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
477XX	226	35	120	124
478XX	225	34	119	123
479XX	226	33	118	122
480XX	233	29	119	123
481XX	231	30	119	123
482XX	233	29	119	123
483XX	232	29	119	122
484XX	232	29	119	122
485XX	232	29	119	122
486XX	230	29	117	121
487XX	231	29	118	121
488XX	230	30	118	121
489XX	230	30	118	122
490XX	228	31	118	121
491XX	226	32	117	121
492XX	231	30	119	122
493XX	228	30	117	121
494XX	226	30	117	120
495XX	228	30	117	121
496XX	227	29	116	119
497XX	230	28	116	119
498XX	223	29	114	117
499XX	220	29	112	115
500XX	211	36	111	116
501XX	211	36	112	116
502XX	211	36	112	116
503XX	211	36	112	116
504XX	212	34	111	115
505XX	210	35	110	115
506XX	213	34	112	116
507XX	214	34	112	116
508XX	209	37	111	116
509XX	211	36	112	116
510XX	206	36	109	113
511XX	205	36	109	113
512XX	205	35	108	113
513XX	207	35	109	114
514XX	208	36	110	114
515XX	208	37	110	115
516XX	209	37	111	115
520XX	217	34	113	117
521XX	215	33	112	116
522XX	215	34	113	117
523XX	215	34	113	117
524XX	215	34	113	117
525XX	214	36	113	118
526XX	216	35	114	118



Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
527XX	218	34	114	118
528XX	218	34	114	118
530XX	222	31	115	119
531XX	222	32	115	119
532XX	222	32	115	119
534XX	223	32	116	119
535XX	219	32	114	118
537XX	219	32	114	118
538XX	217	33	113	117
539XX	219	32	114	118
540XX	213	32	110	114
541XX	222	30	114	117
542XX	223	30	114	118
543XX	222	30	114	118
544XX	218	31	113	116
545XX	217	30	112	115
546XX	216	32	112	116
547XX	215	32	111	115
548XX	214	31	110	114
549XX	221	31	114	118
550XX	211	32	110	114
551XX	211	32	110	114
553XX	209	33	109	113
554XX	211	32	110	114
555XX	209	33	109	113
556XX	215	29	110	113
557XX	212	30	109	113
558XX	213	30	109	113
559XX	214	33	111	115
560XX	210	34	110	114
561XX	207	34	108	113
562XX	206	33	108	112
563XX	208	32	108	112
564XX	208	31	108	112
565XX	204	32	106	110
566XX	207	30	107	111
567XX	203	30	105	109
570XX	204	35	107	112
571XX	204	35	108	112
572XX	203	34	106	111
573XX	201	36	106	110
574XX	199	34	105	109
575XX	197	36	104	109
576XX	194	35	102	107
577XX	191	37	101	106
580XX	201	32	105	110
581XX	203	32	106	110

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
582XX	200	31	104	108
583XX	197	31	103	107
584XX	198	33	104	108
585XX	194	34	102	107
586XX	190	34	101	105
587XX	192	32	101	105
588XX	188	33	99	104
590XX	180	36	95	100
591XX	180	36	96	101
592XX	185	33	98	102
593XX	185	35	98	103
594XX	174	35	93	97
595XX	176	34	94	99
596XX	173	36	92	97
597XX	173	37	92	97
598XX	169	36	90	95
599XX	168	34	90	95
600XX	223	32	116	120
601XX	222	33	116	120
602XX	223	32	116	120
603XX	223	32	116	120
604XX	223	33	117	120
605XX	222	33	116	120
606XX	223	32	116	120
607XX	223	32	116	120
609XX	223	33	117	121
610XX	220	33	115	119
611XX	220	33	115	119
612XX	218	34	115	119
613XX	221	34	116	120
614XX	219	35	115	119
615XX	219	34	116	120
616XX	221	34	116	120
617XX	221	34	117	121
618XX	224	34	118	122
619XX	223	34	118	122
620XX	220	36	117	121
622XX	221	36	118	122
623XX	217	36	115	119
624XX	223	35	118	122
625XX	222	35	117	121
626XX	220	35	116	120
627XX	220	35	117	121
628XX	223	36	119	123
629XX	223	37	119	123
630XX	219	37	117	121
631XX	220	36	117	121

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
633XX	218	37	116	120
634XX	216	36	114	119
635XX	214	36	114	118
636XX	219	37	117	122
637XX	221	37	118	123
638XX	222	38	119	124
639XX	220	38	118	123
640XX	212	38	113	118
641XX	210	38	113	117
644XX	210	37	112	116
645XX	210	38	112	117
646XX	212	37	113	118
647XX	211	39	114	118
648XX	212	40	114	119
649XX	211	38	113	117
650XX	216	38	115	120
651XX	216	38	115	120
652XX	215	37	115	119
653XX	213	38	114	119
654XX	217	38	116	121
655XX	217	38	116	121
656XX	215	39	116	120
657XX	215	39	116	120
658XX	214	39	115	120
660XX	210	39	112	117
661XX	210	38	112	117
662XX	210	39	112	117
664XX	207	39	111	116
665XX	207	39	111	116
666XX	209	39	111	116
667XX	211	40	113	118
668XX	208	40	111	116
669XX	204	39	109	114
670XX	205	41	110	116
671XX	205	41	110	116
672XX	206	41	111	116
673XX	209	41	113	118
674XX	204	40	109	115
675XX	202	41	109	114
676XX	201	40	107	113
677XX	198	41	106	111
678XX	199	42	107	113
679XX	198	43	106	112
680XX	206	37	109	114
681XX	206	37	110	114
683XX	206	38	109	114
684XX	206	38	110	114

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
685XX	206	38	109	114
686XX	203	37	108	113
687XX	203	37	107	112
688XX	201	38	107	112
689XX	201	39	107	112
690XX	197	40	105	110
691XX	196	39	104	109
692XX	197	38	104	109
693XX	192	39	102	107
700XX	226	43	125	130
701XX	226	43	125	130
703XX	224	44	125	130
704XX	225	43	125	130
705XX	221	44	123	128
706XX	219	45	122	127
707XX	223	44	124	129
708XX	223	44	124	129
710XX	217	43	119	124
711XX	216	44	119	124
712XX	220	43	121	126
713XX	221	44	122	127
714XX	219	44	121	126
716XX	220	41	120	125
717XX	217	42	119	124
718XX	215	43	118	123
719XX	216	42	117	122
720XX	218	41	118	123
721XX	218	41	118	123
722XX	218	41	118	123
723XX	221	39	120	124
724XX	220	39	119	123
725XX	218	40	118	122
726XX	215	40	117	121
727XX	213	41	115	120
728XX	215	41	117	122
729XX	213	41	116	121
730XX	207	43	112	118
731XX	207	43	112	118
733XX	210	48	116	122
734XX	209	44	114	119
735XX	206	45	111	117
736XX	203	44	110	116
737XX	205	43	111	116
738XX	202	43	109	115
739XX	198	44	107	112
740XX	209	42	113	118
741XX	209	42	113	119

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
743XX	211	41	114	119
744XX	211	42	114	120
745XX	211	43	115	120
746XX	208	42	112	117
747XX	212	43	115	121
748XX	209	43	113	119
749XX	213	42	115	121
750XX	210	45	115	121
751XX	211	45	116	121
752XX	211	45	115	121
753XX	211	45	115	121
754XX	212	44	116	121
755XX	215	43	117	123
756XX	215	44	118	123
757XX	214	45	117	123
758XX	213	46	117	123
759XX	216	45	119	125
760XX	210	46	114	120
761XX	209	46	114	120
762XX	208	45	114	120
763XX	206	45	112	118
764XX	207	46	113	119
765XX	210	47	116	122
766XX	211	46	116	122
767XX	211	47	116	122
768XX	207	48	113	119
769XX	204	49	111	118
770XX	215	47	119	125
772XX	215	47	120	125
773XX	215	46	119	125
774XX	214	48	119	125
775XX	217	47	120	126
776XX	217	46	121	126
777XX	217	46	121	126
778XX	213	47	117	123
779XX	213	49	118	125
780XX	210	50	116	122
781XX	211	49	117	123
782XX	210	49	116	122
783XX	212	50	118	125
784XX	213	50	119	125
785XX	213	52	120	126
786XX	210	48	116	122
787XX	210	48	116	122
788XX	206	50	114	120
789XX	212	48	118	124
790XX	199	45	107	113

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
791XX	199	45	107	113
792XX	202	46	109	115
793XX	199	47	108	114
794XX	200	47	108	114
795XX	204	47	111	117
796XX	205	47	112	118
797XX	200	49	108	115
798XX	197	51	106	113
799XX	192	51	103	110
800XX	190	42	101	107
801XX	190	42	101	107
802XX	190	42	101	107
803XX	189	42	101	106
804XX	188	42	100	106
805XX	189	41	101	106
806XX	190	41	101	107
807XX	193	41	103	108
808XX	192	42	103	108
809XX	191	43	102	107
810XX	193	43	103	109
811XX	189	45	101	107
812XX	189	44	100	106
813XX	185	45	98	104
814XX	185	44	98	104
815XX	183	44	97	103
816XX	185	43	98	104
820XX	189	40	100	106
821XX	177	38	94	99
822XX	190	39	101	106
823XX	184	40	98	103
824XX	181	38	96	101
825XX	180	39	96	101
826XX	185	39	98	103
827XX	187	37	99	104
828XX	184	37	97	102
829XX	179	41	95	101
830XX	177	39	94	99
831XX	178	40	94	99
832XX	174	40	92	98
833XX	171	40	90	96
834XX	174	39	92	98
835XX	165	37	88	93
836XX	167	39	88	93
837XX	167	40	88	93
838XX	165	35	88	93
840XX	177	42	94	99
841XX	176	42	93	99

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
842XX	175	42	93	98
843XX	175	41	93	98
844XX	175	42	93	98
845XX	180	44	95	101
846XX	177	44	93	99
847XX	176	46	92	99
850XX	180	50	93	101
852XX	181	51	94	102
853XX	177	51	92	100
855XX	183	50	96	104
856XX	183	52	96	104
857XX	182	52	95	103
859XX	184	49	97	104
860XX	180	48	94	101
863XX	178	49	93	100
864XX	175	49	90	98
865XX	183	47	97	103
870XX	189	47	101	107
871XX	189	47	101	108
872XX	190	47	101	108
873XX	185	47	98	105
874XX	185	46	98	105
875XX	190	46	101	108
877XX	192	46	103	109
878XX	188	49	100	107
879XX	189	50	101	108
880XX	189	50	100	108
881XX	196	47	105	112
882XX	196	49	106	113
883XX	193	49	103	110
884XX	195	46	104	111
885XX	192	51	103	110
889XX	172	48	89	96
890XX	171	47	89	95
891XX	172	48	89	96
893XX	170	44	89	95
894XX	164	44	84	91
895XX	162	44	84	90
897XX	162	45	84	90
898XX	169	42	89	94
900XX	167	50	84	92
902XX	167	51	84	92
903XX	167	51	84	92
904XX	166	51	84	92
905XX	167	51	84	92
906XX	167	51	85	92
907XX	167	51	84	92

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
908XX	167	51	84	92
910XX	167	50	85	92
911XX	167	50	85	92
912XX	167	50	84	92
913XX	166	50	84	91
914XX	166	50	84	92
915XX	167	50	84	92
916XX	167	50	84	92
917XX	168	50	85	93
918XX	167	50	85	92
919XX	170	52	86	94
920XX	170	52	86	94
921XX	170	52	86	94
922XX	172	51	88	95
923XX	169	50	86	94
924XX	169	50	86	93
925XX	169	51	86	93
926XX	168	51	85	93
927XX	168	51	85	93
928XX	167	51	85	92
930XX	165	50	83	91
931XX	164	50	82	90
932XX	164	48	83	90
933XX	166	49	84	91
934XX	162	49	81	89
935XX	167	49	85	92
936XX	163	47	83	90
937XX	163	47	83	90
938XX	163	47	83	90
939XX	160	48	80	87
940XX	158	46	80	86
941XX	158	46	80	86
942XX	160	45	81	88
943XX	158	47	80	87
944XX	158	46	80	86
945XX	159	46	80	87
946XX	158	46	80	87
947XX	158	46	80	87
948XX	158	46	80	86
949XX	158	46	80	86
950XX	159	47	80	87
951XX	159	47	80	87
952XX	160	46	82	88
953XX	161	46	82	89
954XX	157	45	79	86
955XX	155	43	79	85
956XX	160	45	82	88

Zip Code Ranges	AZ	EL	DISH 500+ SK	DISH 1000+ SK
957XX	160	45	82	88
958XX	160	45	81	88
959XX	160	44	81	88
960XX	158	43	81	87
961XX	162	44	83	89
967XX	99	41	30	32
968XX	98	40	30	32
970XX	156	38	82	87
971XX	154	37	81	86
972XX	156	38	82	87
973XX	155	38	81	86
974XX	155	40	81	86
975XX	156	41	81	86
976XX	159	41	83	88
977XX	159	40	84	89
978XX	162	38	86	91
979XX	165	39	87	92
980XX	155	35	83	88
981XX	155	35	83	87
982XX	155	34	83	88
983XX	155	35	83	87
984XX	155	36	83	87
985XX	154	36	82	87
986XX	156	37	82	87
988XX	159	35	85	90
989XX	159	36	84	89
990XX	163	35	87	92
991XX	162	35	87	91
992XX	163	35	87	92
993XX	161	37	86	91
994XX	164	37	87	92
995XX	118	15	69	71
996XX	117	15	69	71
997XX	118	11	74	76
998XX	135	23	78	81
999XX	138	25	78	82

## Radio Interference

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

Modifying this receiver may void your authority to use the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

If none of the remedies stops the radio interference, you should contact a licensed radio/television technician, your satellite dealer or call the Customer Service Center at 1-800-333-3474, for assistance.

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