Installation Reference Handbook

Sections of the Installation Handbook have been **updated on 4.15.2011 and 6.8.2011** - see the date on each attached document.

Section 1 - LNBFs and Switches

This section provides information on DISH Pro and DISH Pro Plus technology. Additionally, following charts are provided for reference:

- LNBF and Switch Connectivity Chart
- Receiver and LNBF/Switch Compatibility Chart

Section 2 – DISH Antennas

Available antenna configurations will vary depending on a customer's location and programming choices. This section provides an overview of antenna options, orbital locations, and standard configurations.

Section 3 – Installation Diagrams

When referring to this section of the Installation Reference Handbook, please take note of the following:

- The installation options listed within this document may or may not be reimbursable installations. Refer to the latest Business Rules to confirm reimbursement status.
- Installations must use all Legacy LNBFs and switches, or all DISH Pro/DISH Pro Plus LNBFs and switches. Do not mix and match Legacy components with DISH Pro/DISH Pro Plus components.
- If upgrading from Legacy LNBFs and switches to DISH Pro/DISH Pro Plus LNBFs and switches, ensure all Legacy components (for example, power inserters) are removed. Remove DP Adapters from any Legacy receivers connected to DISH Pro Plus components.
- Maximum distance between the furthest LNBF and farthest receiver is 200 feet for DP/DP Plus receivers; 100 feet for Legacy receivers (four-digit model numbers). Maximum cable length from a wing dish with a compatible DISH Pro LNBF to a DISH Pro Plus LNBF's LNB IN port is 80 feet with 120 feet from DPP LNBF to receiver for a total of 200 feet.
- Ensure all components (for example, cable, ground blocks, diplexers, splitters, line amps, barrel connectors, wall plates and surge protectors) are rated for DISH Pro/DISH Pro Plus installations (rated to

2150 MHz and pass DiSEqC 22 KHz tone - review the DISH Network Approved Accessories List), also referred to as DP compatible.

- Refer to the LNBFs and Switches and Dish Antennas sections for Legacy receiver installation considerations.

Section 4 – Signal Distribution

Signal distribution refers to taking a DISH Network Agile modulated output signal (the dual-tuner/two-TV satellite receiver's HOME DISTRIBUTION output), or an Over-the-Air (OTA) antenna (or cable) signal and distributing it to multiple TVs throughout the home.

Both visual confirmation and a signal meter are used to determine if the video quality at the television is acceptable to the customer. Analog or digital signal meters measure the power level at each TV location.

You can determine the kind of video quality you can expect, based on the components you are planning to use in the installation (such as cable quality, cable length, splitters, and diplexers). Calculate the expected signal loss from the content source (DISH Network receiver or antenna/cable) to the television using the information that follows.

The Signal Distribution Site Survey and Tips for Successful Signal Distribution will help to improve the chances of a quality installation.

The Distribution Diagrams that follow provide various installation options, including using DISH Pro Plus LNBFs and switches for the single-cable/dual-tuner receiver installation advantage. The colors used in the diagrams help show the type of signal on the cable (for example, blue for satellite signals)—see “F-Connectors, Cable and Channel Stickers” for a description of the colors used. Note that red is used in the Distribution Diagrams for over-the-air signals.

Section 5 – Outdoor Installation

The information provided in this section is not a step-by-step set of installation instructions, but it provides tips and reminders during various activities to help ensure a quality, trouble-free installation. See Indoor Installation Info for receiver and customer-related details.

- Product Knowledge
- Site Survey
- Mounting and Pointing the Dish
- Grounding
- Cabling
- Before You Leave

Section 6 – Mounting Options

There are key factors to consider when choosing the best mounting location. Making the wrong choice can result in damage to a customer's home, injury to you or the customer, or an angry customer. Always be sure to consider the following:

- Safety of the customer
- Surface is structurally sound
- Location has a clear line of sight with no future growth that will obstruct it
- Building material
- Increase the options available to you and the customer by providing additional mounting solutions
- Always follow the installation instructions!

Note: The universal non-pen and foot plate are the only mounts approved for dish antenna sizes above the DISH 1000.2.

Section 7 – OTA

Basics of Over-the-Air Reception

- Over-the-Air (OTA) channels are broadcast by local TV stations from a transmitter tower

  There are two types of OTA broadcasts:
  1. Analog, which is expected to be transition to all digital by June 12, 2009 for full-power broadcasts
  2. Digital, which is a more efficient method of transmitting signals using 8VSB modulation technology that allows improved picture and sound quality, such as HDTV

  OTA signals can be sent in either VHF or UHF frequency ranges:
  - VHF (Very High Frequency): Channels 2-13
  - UHF (Ultra High Frequency): Channels 14-69, most common for digital OTA broadcasts
  - A tuner is required to receive analog or digital OTA broadcasts

Antenna Types and Characteristics

- Designed for various requirements, including aesthetics, ability to pick up weak signals, and/or rejecting interference
- CEA Color Coding is used to categorize antennas according to their characteristics

Section 8 – Indoor Installation

This section will help you with tips for receiver connectivity and activation, plus customer education.

- Receiver Installation
- Other Connections
- Receiver Activation
- Customer Education Reminders
- Top Tips to Ensure a Successful Installation

Section 9 – HDTV

This section will outline the components of an HD system and how you can get the best HD picture! HD installation and setup instructions are provided, along with troubleshooting steps, an HD installation checklist, and receiver education tips specifically for your customers.

Section 10 – Receivers

General Receiver Features

- Electronic Program Guide (EPG): Offers easy search features and program information with instant access to start time, end time, and a brief description of the show.
- Event Timers: Programs the satellite TV receiver to automatically tune to a program for viewing or recording at a designated time.
- Search: Use keywords to quickly find your favorite TV programs.
- Themes Lists: Access programs by category: Movies, Sports, News/Business, Family/Children, Education, Series/Specials, Music/Arts, and Religious.
- Favorites Lists: Access a grouping of user-selected channels (All Channels, All Subscribed Channels, and four user-defined lists). An All HD Channels list is available on some models.

- Parental Controls: Provides ability to restrict viewing of programs based on channels, ratings, and content.
- DishHOME Interactive TV: Access breaking news, sports scores, weather information, TV and movie buzz, convenient customer service, games, and more...all with the push of a button.
- On-Screen Caller ID with History: View incoming phone calls (and history on compatible receivers). Phone line must be connected to the receiver and requires Caller ID subscription with local phone company.
- Software Upgradeable via Satellite: Allows receivers to automatically receive FREE software upgrades via satellite, when available.
- Alternate Audio (Alternate Language Support): Allows selection of various audio languages, when supported by the program.

Section 11 – DishONLINE and Home Networking

DishONLINE allows customers with compatible satellite receivers to use their home broadband Internet service to download movies and video programs that are not available over the satellite, then view them later. DishONLINE is available to receiver models ViP 612 DVR, ViP 622 DVR, ViP 722 DVR and ViP 722k DVR.

To use DishONLINE, the satellite receiver must be connected to the home network, and the customer must subscribe to a broadband Internet service.

Access the DishONLINE feature by pressing the DVR button on the DISH Network remote control, then selecting the DishONLINE option. From the DishONLINE menu, access a list of programs available for download (using New Releases or DISH Theater) and watch the programs that have already been downloaded (using My Rentals).

While receiver models ViP 211, ViP 211K, ViP 222 and ViP 222k cannot access DishONLINE, these receivers can be connected to the home network to enable Pay-Per-View purchase authorization.

Section 12 – Sling Technology

What is Slingbox?

The Slingbox is a TV streaming device that enables users to remotely view their home cable, satellite, or digital video recorder (DVR) programming from a computer or mobile device with a broadband internet connection anywhere in the world. This way of accessing content is known as place shifting.

How does Slingbox work?

A Slingbox connects a TV source (via coaxial cable, composite cables, component cables, or S-Video cable) to an existing internet connection. The TV source can be controlled through a separate infrared (IR) cable that lets users change channels from the remote location. Software on a user's computer or mobile device connects to the Slingbox and provides the user interface for viewing the video stream and changing channels. An on-screen virtual remote control is provided for controlling almost any device.

Slingbox utilizes Sling Media's SlingPlayer software to display audio and video on Microsoft Windows, Apple Computers running Mac OS X, and select mobile devices. SlingPlayer is not available for Linux, BSD or other open source systems.

See www.slingmedia.com and the attached section for more information.

Section 13 – Remote Controls

This section contains the manufacturer codes for programming the remote to control a TV, VCR, DVD player, or audio amplifier. Every attempt has been made to include all codes. If a certain equipment brand is not listed or if the codes do not work, the remote may not control the specified equipment. In some cases codes may operate some but not all buttons shown in this guide.

Section 14 – Troubleshooting

Understanding how DISH Network equipment is designed to function will prevent unnecessary troubleshooting and wasted time. Use this section and its processes to logically troubleshoot and diagnose problems.

Section 15 – DISH U

DISH Network Installation Courses

Whether you are a seasoned technician who has been around since the “big dish” days, or a brand new technician learning the ropes, DISH Network offers a comprehensive online installation curriculum, free to you!

- Brush up on current industry standards
- Get up-to-date on current DISH Network products
- Test your current knowledge
- Avoid common installation mistakes
- Invest in your professional development
- Impress your boss and peers with the quality of your installation

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