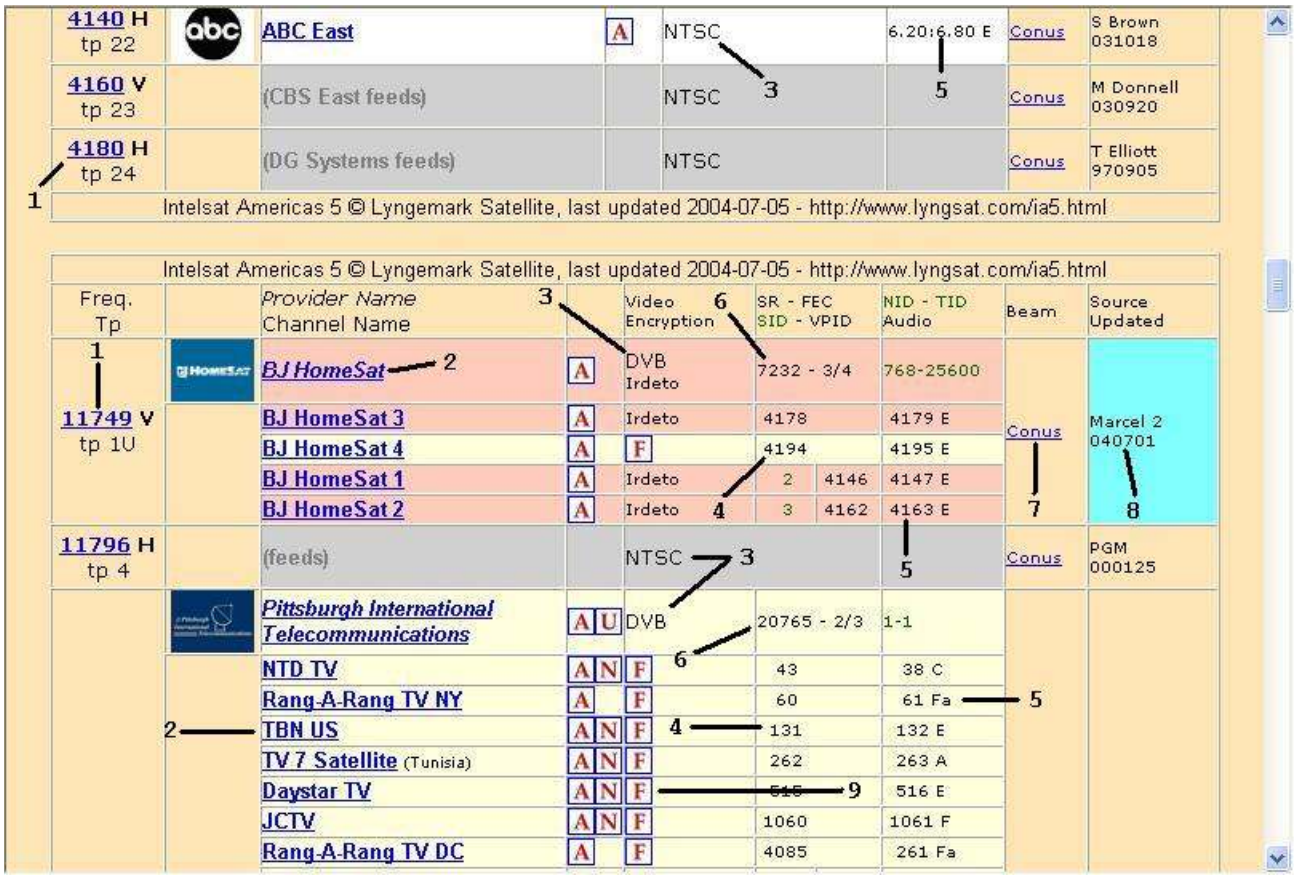
ACRadio's

# Interpreting Lyngsat Data

**There seems to be a lot of confusion when it comes to reading and using the data from Christian Lyngemark's wonderful satellite info site at [www.lyngsat.com](http://www.lyngsat.com) . For most satellite veterans this website carries a lot of weight in being a great up-to-date reference tool, especially for checking active transponders. But for the newbie's and people just coming on board the FTA boat, the data can seem a little intimidating. It is important for FTA satellite partakers to be able to understand not only what the numbers mean, but just how valuable a reference tool is at their fingertips, and how much knowledge is contained within the pages of this site. In this document we will explore the items that are important to us as FTA hobbyists.**

**Fig. 1**




**Referring to figure 1 and the above labeled items –**

1. **Frequency And Polarity**
   **Two of the must-knows to successfully tune a channel. The 4180 H frequency is a C band transponder at 4180 MHz with horizontal polarization. The 11749 V is a**

**KU band transponder at 11749 MHz with vertical polarization. If you place your cursor over the frequency, and look at the bottom status bar of your browser with JavaScript enabled, you will be able to see the correct IF frequency, based on a 10750 MHz. local oscillator for FSS satellites, or based on an 11250 MHz. local oscillator for DBS satellites. The polarity of the signal is how the signal approaches the dish from the satellite. There are two types of polarity that we use, linear and circular. Linear signals travel from the satellite in a plane oriented either vertical (up-down), or horizontal (left-right). Circular polarity signals travel from the satellite in a corkscrew pattern, either right hand (clockwise) or left hand (counter clockwise). Your receiving LNBF or feed must be of the proper type for the signal being received, both frequency and polarity.**

**2. Channel Name And Service**

**We have two examples of MCPC channels in figure 1. MCPC stands for "Multiple Channels Per Carrier". This is a "multiplex" of channels all riding on the same carrier, and the acronym that is used is "mux". Another name that is sometimes used is "bouquet". In these examples, the name at the top of the block is the service provider of the mux, and the entries below are the actual channels contained in the mux. BJ Homesat is the provider, and BJ Homesat 1, 2, 3, and 4 are the actual channels. This is actually Bob Jones University service channels for their home schooling program. In the second example Pittsburg International Telecommunications is the provider, and NTV, Rang-A-Rang, and TBN are just some of many channels in this mux. The provider and channel names that are clickable will take you to their website for more information about their service.**

**3. Signal Type**

**As FTA hobbyists we are mainly interested in signals listed in Lyngsat as DVB, or Digital Video Broadcast. In figure 1 at the top of the page we find a signal type listed as NTSC. This stands for National Television Systems Committee. They were the people responsible for outlining a television standard in the United States. The above example is an ABC East analog carrier which is "in the clear (ITC)", and signified by the entry box being white. There are still many receivable analog carriers being transmitted, although the vast majority is now digital. The BJ Homesat mux is a DVB signal, and notice that the entry box for this mux is a pink color. This color signifies that the mux is encrypted. Below the DVB indicator is the name "Irdeto". This is the encryption standard that is being used for this channel. Nagravision, PowerVu, Conax, and SECA are examples of other encryption systems in use around the world. The Pittsburg International mux entry box is in yellow, and that signifies that this DVB signal is FTA, and should be receivable by all MPEGII FTA receivers. Signal types such as DCII or MPEG 1.5 are not receivable by FTA receivers.**

**4. Video PID**

**I have heard the acronym PID described two different ways, one being called "Package ID" and the other being called "Packet ID". I choose to use the latter**

**term, as all digital data received from satellites are sent as data packets. These data packets all have something in common: they all have a purpose, they all belong to a channel, and they all have an ID number. PIDS are what keeps data from one channel from being interpreted as belonging to another channel, and what identifies the type of data it is, audio or video. Each video channel in a mux has 3 PIDS, video, audio, and PCR. The first two are self explanatory. All digital data has to be precisely timed, and the PCR PID is the data packets that contain the clock reference signal. Lots of times it's contained inside the video PID, but it doesn't have to be. In figure 1, BJ Homesat Channel 4 is listed as having a video PID of 4194, and below it TBN US has a video PID of 131.**

**5. Audio PID**

**Continuing with our discussion of PIDS, BJ Homesat 2 has an audio PID of 4163. There is an "E" beside the audio PID, and this signifies that the language of the audio PID is English. This is useful when 2 or more audio PIDS are being transmitted for the same channel using different languages to help identify the desired PID to be used. For Rang-A-Rang, the audio PID is 61, and is labeled Fa. I am supposing this means the Farsi language. At the top of the page at our ABC analog channel, those numbers are actually analog audio frequencies used to manually tune an analog receiver to a set of stereo audio subcarriers. The two frequencies, 6.20 and 6.80 are the left and right channel.**

**6. Symbol Rate And FEC**

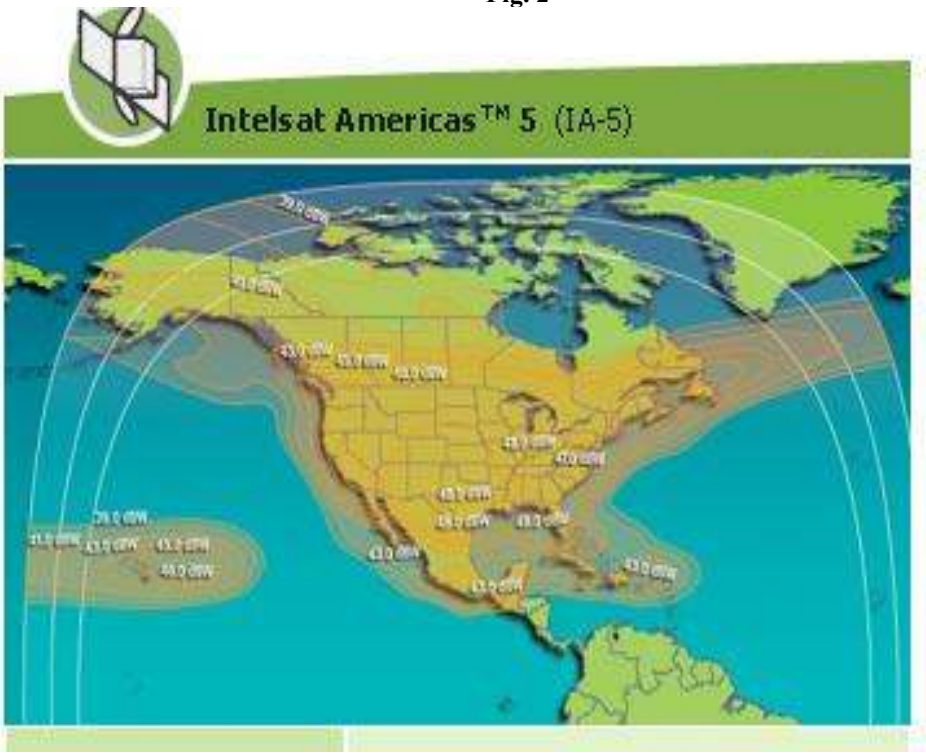
**Another one of the must-knows, the symbol rate (SR) is nothing more than the data rate of the carrier. The higher the SR, the more information (channels) can be transferred on the carrier, and the more transponder space is needed to transmit the carrier. In Figure 1, the SR of BJ Homesat is listed as 7232, and for Pittsburg International it is 20765. Most of the time the SR of a carrier is indicative of the amount of channels being transmitted on a carrier. The FEC, or Forward Error Correction, is usually calculated for us by the receiver, so we generally don't need to enter this information except in certain mainly older receivers. The ¾ FEC ratio for BJ Homesat means for every 4 bits of data, 3 is for information and 1 is for error correcting.**

**7. Beam**

**A satellite beam is similar to a flashlight shining down on the earth. It has a specific amount of brightness, or power, and the beam has a spread that covers a certain area. We assume that we can receive a signal from all satellites we can physically see, but just because you can see the area of the sky where a satellite is located doesn't mean you can receive any signals from it at all. It must be emitting a signal that is covering your location in order to receive a signal from that satellite. Signals can be sent to whole hemispheres, specific countries, or a small geographical area as small as a couple hundred miles. In figure 1 this area of the chart tells us which beam the channel or service is using. All the services shown are using the CONUS beam of the IA5 satellite. Lots of times this is a clickable link that will take you to the website of the satellite owner where you**

**can view the footprint maps of the satellite. Figure 2 is an example of a footprint map for IA5…**

**Fig. 2**




**The orange area is the IA5 CONUS beam, but as you can see the beam goes well beyond the borders of the US, but drops off quickly as you get nearer to the beams edge.**

**8. Record Update**

**This is the screen name of the person updating the record and the date of the last update.**

**9. Click Boxes**

**These white boxes are clickable, and are designed to give you more information on the specific channel or service. The "A" box takes you to a site within Lyngsat called "Sat Address". This will give you information about contact information for a channel, the physical mailing address and/or phone number of a channel, and other information. The "F" box is a link within the site for listings for free TV. The "N" box is a link for internet TV and radio broadcasts. If a service has**

**specific channel packages available, the "P" box will take you to a detailed listing of the channels offered by the service provider. There is also a "U" box that will give you information about a specific satellite uplink station.**

**Let's stop here and say that as an FTA hobbyist, it is not wise to contact any of the programmers or uplinkers for any reason. Almost always they are not transmitting for you to receive them. You are privy to information that shows you how to receive this programming and it usually isn't produced specifically for your consumption. Lots of times these programmers feel that the amount of receivers in the field capable of receiving their service is not consequential enough to warrant trying to protect their signal by encrypting. But the more people who contact them with questions and make them aware that their programming is being viewed by users of FTA equipment, then it gives them an indication as to the possible amount of viewers they are getting, and decisions are sometimes made to encrypt the signal. Let's respect each other as fellow hobbyists and just enjoy the things we see and share information between ourselves, not the programmers.**

**Fig. 3**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12297 L tp 6 SR 20000 FEC 5/6 | | IFC US | A | Nagravision 1 Nagravision 2 | 131 | 4642 | 4643 E | Conus | R Hewitt 020622 |
| | | ESPN Classic USA | A | Nagravision 1 Nagravision 2 | 143 | 4898 | 4899 E | | R Hewitt 020622 |
| | | Toon Disney | A | Nagravision 1 Nagravision 2 | 174 | 4130 | 4131 E 4132 Sp | | R Hewitt 020622 |
| | | Discovery Health Channel | A | Nagravision 1 Nagravision 2 | 189 | 5666 | 5667 E | | R Hewitt 020622 |
| | | Fox News Channel | A | Nagravision 1 Nagravision 2 | 205 | 5154 | 5155 E | | R Hewitt 020622 |
| | | NASA TV | A | F 10 | 213 | 5922 | 5923 E | | J Hotsenpiller 030910 |
| | | The Weather Channel | A | Nagravision 1 Nagravision 2 | 214 | 6690 | 6691 E | | J Hotsenpiller 030910 |
| | | Travel Channel (USA) | A | Nagravision 1 Nagravision 2 | 215 | 6178 | 6179 E | | J Hotsenpiller 031113 |
| | | QVC US | A N | Nagravision 1 Nagravision 2 | 226 | 6946 | 6947 E | | J Hotsenpiller 030910 |
| | | HBO 2 East | A | Nagravision 1 Nagravision 2 | 301 | 6434 | 6435 E 6436 Sp | | R Hewitt 020622 |
| | | HBO Signature East | A | Nagravision 1 Nagravision 2 | 302 | 4386 | 4387 E 4388 Sp | | R Murdoch 981016 |
| | | Showtime East | A | Nagravision 1 Nagravision 2 | 318 | 5410 | 5411 E 5412 Sp | | R Hewitt 020622 |
| | | Italia | A | F | 944 | | 4096 | | |

**10. Service ID**

**Figure 3 is an example of a page from the package section of the Echostar 7 satellite used by Dish Network. The Service ID is the numerical service channel number used by a provider. In the above example, if you were a subscriber to Dish Network, and selected channel 213, you would find the NASA channel. At the top of this page you have the option of indexing this page according to frequency or by Service ID number. This would be useful if you wanted a numerical channel number list for Dish Network channels for a particular satellite. Note that the package pages do not have the total listing for a service, only the channels contained on the selected satellite.**

**Conclusion**

**This document isn't meant to be a complete guide, but only as a beginners reference for those wanting to learn how to make their own channel lists for their FTA receivers, and be able to use Lyngsat as a reference and understand what all the numbers mean. Hopefully this will at least get you started in understanding more about FTA satellite receivers, and begin to get you more involved in programming your own satellites, frequencies, and channels.**