



## MANUAL TUNING GUIDE FOR SKY TV WITHIN EUROPE

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### Equipment

So, what do you need? Obviously you need a dish, a Sky DigiBox and a compass to find the bearing. Plus a TV!

As far as acquiring the DigiBox is concerned, the cheapest choice is to buy one outright from somewhere like eBay (check our listings out!) without having to be tied to any restriction.

Check out the eBay users *Tele\_Sat\_GSM\_Tech*, *Shelleys\_Market*, and *PerfectSatellites* for bargains on Dishes, Receivers and LNBS

**Note that apart from the BBC, the terrestrial channels (ITV1, Channel 4 and Five) are encrypted and therefore although they're free to receive, you need a viewing card to unscramble them.**

**This is known as free-to-view (FTV), as distinct from free-to-air (FTA) which is transmitted clear.**

**You can get these FTA channels using 3 methods:-**

- 1. Take a normal Sky subscription**
- 2. Purchase an FTA card from Sky for £20 by phoning Sky 08706 061 111. Simply ask for a card for the new 'Freesat' service.**
- 3. Use an old Sky Card (one with the little house on) that has been cancelled.**



Digital programmes are broadcast by the Astra 2 system which is located roughly SSE (at longitude 28.2° E above the equator), so the first thing is to find the approximate compass setting.

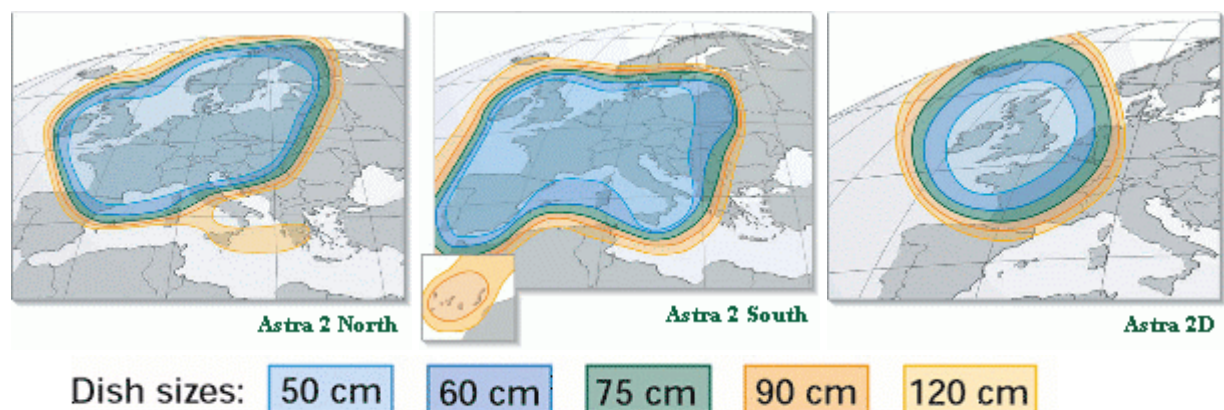
Professional Sky installers use a satellite finder meter that specifically seeks out the correct signal. As for dishes, you have a wide choice and it might not be necessary to purchase a large diameter dish - even in southern Europe a standard domestic minidish will enable you to watch some channels such as Sky News. The BBC, ITV, Channel 4 and Five will require a larger, more powerful dish in southern Europe.

In order to get a 'rough' alignment, look at the Angle Alignments guide

The Astra 2 system consists of 3 satellites close together in space so that your dish will 'see' all of them as if they were a single unit. All 3 transmit signals aimed at Europe but the coverage on the ground varies considerably. The 2 older satellites, 2A and 2B, can be thought of as flood lights, lighting up a huge area of Europe, whereas the newer Astra 2D is more like a spot light focused on the British Isles.

For the sake of convenience the signals are referred to as the north beam, south beam and narrow beam (or more usually just the 2D beam). All 3 beams cover the UK so all channels are viewable if you have the appropriate Sky contract. However, as you travel further away from the UK, some channels can only be obtained with a large dish. Of the terrestrial channels the first to be lost will be ITV1 and the BBC both of which transmit on Astra 2D, the narrow beam, and once you get down into Spain or Italy you'll also begin to lose Channel 4 and Five (on the north beam). Many of the Sky channels transmit on the south beam and therefore can be received in virtually all of Europe except for northern Scandinavia and parts of Greece.

The following diagrams show the footprints of the different beams. A standard 43cm minidish will be OK in the inner pale blue area, whereas for the outer yellow band a 1.2 metre dish is recommended. However these Astra maps are somewhat pessimistic and although you'd be wise not to stretch them too far, you'll probably get away with a smaller dish than recommended - many people have said that they receive BBC/ITV1 on the Côte d'Azur with a 60cm minidish.



Images Copyright Société Européenne des Satellites.

## What about a meter?

Firstly, Meters are expensive (the cheap ones will only tell you if you have a 'signal', not which Satellite you are pointing at!), secondly, the Digibox is more than capable of being used as a meter if you have the dish pointed roughly at the right angle [see the angles guide]

Next, you have to align the Vertical (Elevation) and Horizontal (Angle) alignments of the Dish

## How to do the actual alignment.

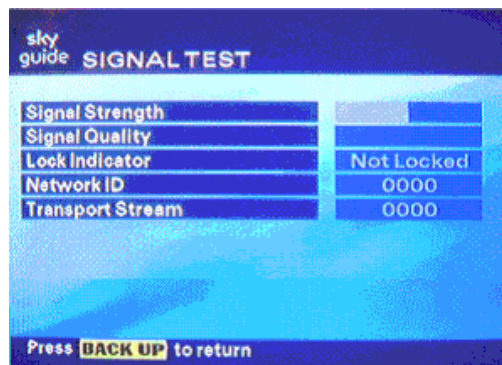
First of all, this is not a quick job – it takes patience, and ideally you need to be able to see the TV screen from wherever you adjusting the dish – I recommend a LONG extension lead!

So, follow these steps to tune in the system. I make the assumption, incidentally, that your television is already tuned to the DigiBox output. If it isn't, refer to your instruction manual and at least get the "No Signal" blue screen on your TV before you start!

First, make sure there are no trees or other obstacles in the way of the dish and then connect the dish to the DigiBox and switch on the power.

**Warning: The dish cable carries a small electric current, and a voltage of up to 18v, so never connect or disconnect it while the DigiBox is switched on at the wall.**

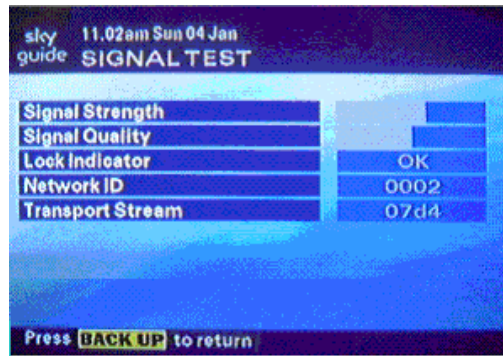
Don't worry if the remote control doesn't react immediately - after switching on the power the DigiBox can take up to 30 seconds before it will respond (sometimes more for Sky+ receivers).



On the remote control, press Services, then press 4, then 6. This will display a Signal Test screen. Ignore the Signal

Strength and Signal Quality bars for now - they're not needed for this tuning process. The Network ID and Transport Stream should be 0000 – unless you have managed to get it aligned perfectly first time!. Some DigiBoxes display a Signal Quality reading regardless of lock indicator, others don't. You should however have something in the Signal Strength bar.

As stated, place the television where it can be seen while manipulating the dish, (or if this isn't possible, get someone else to watch the TV while you do the business with the dish), then point the dish to the South using a compass or even the position of the sun and time of day if you prefer, and **a bit at a time** turn it to the left until the zeros change



to **0002** (Network ID) and **07d4** (Transport Stream). The change will be quite sudden so go carefully to avoid swinging the dish too far. The Lock Indicator will also change from 'Not locked' to 'OK'. The value of **07d4** is the correct one in the UK but you might encounter others, particularly if you're trying to get a signal in southern Europe (of which more later). However the Network ID must be **0002**, otherwise you're pointing at the wrong satellite system

Some Panasonic DigiBoxes are prone to a fault whereby the Lock Indicator shows OK as soon as the box is connected to a dish even if the dish is pointing nowhere near the satellite. Ignore the OK and concentrate on getting the 0002 and 07d4.

Some Amstrad boxes will need to be powered off and back on again before you can start receiving and channels – another common fault!

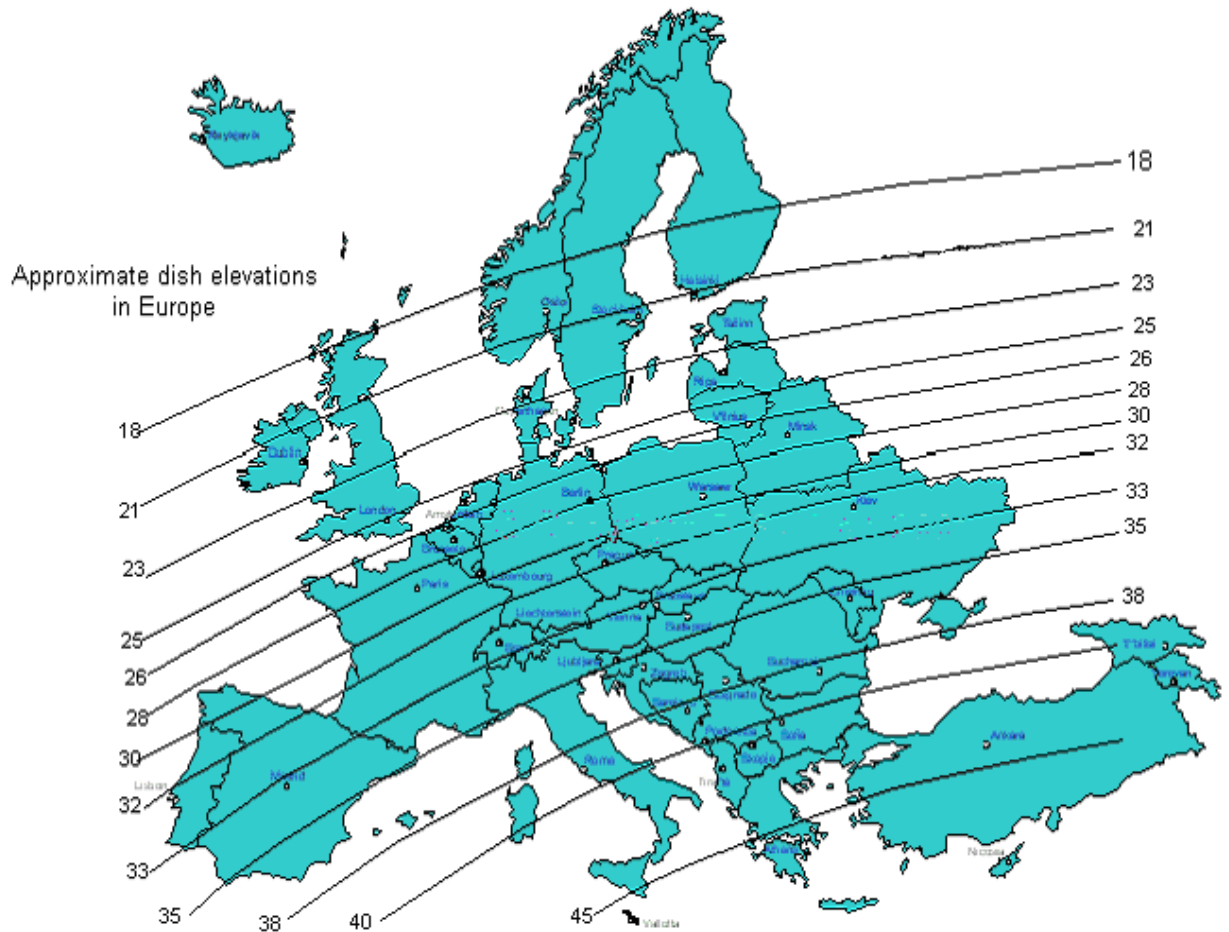
The Satellite you require is actually situated at SSE, or 28.2°E of S to be exact, but that figure refers to the value of Longitude at which the satellite system is parked over the equator so the actual compass bearing does depend on whereabouts you are at the time, so refer to my Angle guide for an actual elevation and angle for your location.

The LNB manufacturer SMW has some FREE downloadable software on its website, <http://www.smw.se/>, that will allow you to enter your current latitude and longitude and obtain an accurate compass bearing for Astra 2

### Common Problems?

If the zeros remain unchanged, and assuming there is no obstacle in the way, there are a few possibilities. First, make sure you're not simply swinging the dish too quickly - if you do you could swing it right through the beam and out the other side before the DigiBox has a chance to react. Otherwise, the most likely is that the dish elevation is wrong. All dishes have an elevation scale marked on the mast clamp which is hinged vertically and secured by nuts. On a slightly diagonal line from North Wales through to about Hull, the elevation should be 22-23°. The further south and east you travel, the higher you will need to point the dish (the amount is slight - roughly a degree for every 100 miles, 25° in London, 35° in Barcelona for example). Alter the elevation slightly by loosening the nuts that secure the hinge and try again.

Again, I recommend my Angles Guide, but here is a quick European guide...



If you're using a domestic minidish, the scale marked on the dish can be very misleading, and can indicate an elevation of 15 to 20 degrees higher than the above diagram suggests.

The other possibility, especially if this is your first attempt, is that the cable connections have been assembled wrongly. A number of people have found that to be the problem and everything was OK once they'd rewired the connectors. You need to make sure that at each end of the cable, the copper-mylar foil and braided copper shield are properly folded back from the central core and that there is no possibility of them touching (even if they are 'professionally' made!).

Note: Oval dishes can be easier to align than circular ones because the vertical angle is wider and therefore the elevation setting is a little less critical.

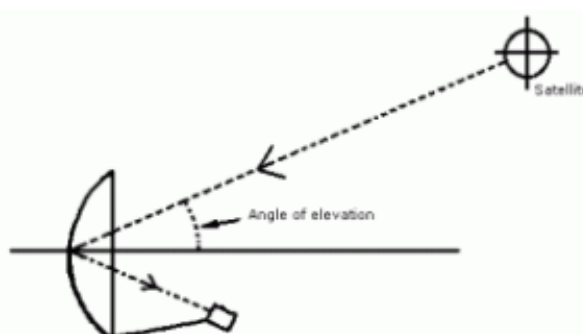
Whichever type you have, you simply have to be patient and move the dish very gradually, both horizontally and vertically. Whatever you do,

don't just wave the dish around, even slowly. The trick is to be methodical - set the dish elevation roughly using the scale marked on the back of the dish, and then scan the sky **slowly and in discrete steps** across an arc either side of SSE before altering the elevation slightly and scanning again. I recommend swinging the dish about 1 degree at a time and at roughly 1-second intervals.

Note that once a signal has been detected the DigiBox will retain its settings, so if you've picked up a wrong signal or the dish is subsequently moved for any reason, causing a loss of picture, it will be necessary to unplug the power for about 30 seconds in order to reset the Network and Transport Stream values before attempting to align the dish again.

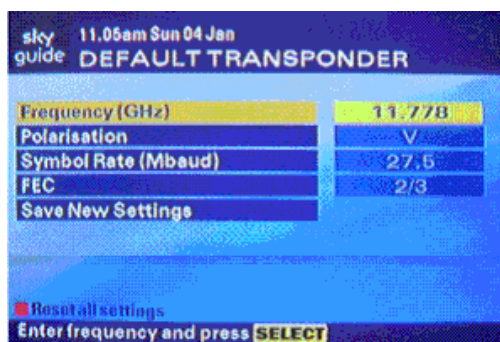
Improved reception, especially in marginal reception areas or in bad weather conditions, can also be obtained by skewing the LNB (the box at the end of the antenna arm). Loosen the locking screw if there is one and turn the LNB about 15-18° clockwise (viewed from the front of the dish), perhaps as much as 30° in southwestern Europe, while you watch the Signal Quality bar on the Signal Test screen.

The elevation referred to in this section is that of the satellite above the horizon. Most dishes are of the offset focus type - i.e. the signal is reflected downwards to the antenna - and therefore the dish itself will appear to point some way below that angle. Indeed, as mentioned earlier, in the UK the dish rim might well be almost vertical and in the far north of Scotland it could even appear to point down into the ground!



### Getting a signal in the southernmost parts of Europe.

The Astra 2 system transmits a north beam and a south beam, (and also, from the Astra 2D satellite, a spot beam that carries ITV and the BBC). When Sky DigiBoxes are first switched on, they're programmed to look for the north beam first and if they don't find it they'll just give up. The north beam is receivable throughout northern Europe and even as far south as northeast Spain and northern Italy, (see the satellite footprint map). For other parts of Italy and the Iberian peninsular however, the north beam might be out of reach unless you have a very large dish and you will need to change the



DigiBox's default transponder setting to one of the south beam frequencies in order for it to work. The process is straightforward and your viewing card will continue to work.

Using the remote control, press **Services** and then **4**. Now in quick succession, press **0**, **1** and **Select**.

**This is an hidden sequence which gives access to the Installer Setup screen. Once you have the "Installation Menu" Press 2 to get the Default Transponder screen. (This menu also lets you enable 'Magic Eye' links etc)**

Now, using the keypad on the remote control, change the Frequency from 11.778 to 12.129 (ignore the decimal point, just key in the 5 digits), press the down arrow key 4 times to highlight Save New Settings and press Select. Press Backup 3 times to return to the main screen. Now go through the dish alignment process as described above. On the south beam, the Lock Indicator panel will continue to show 'Not locked' but this is normal and will not affect signal reception. (If the DigiBox retunes itself back to 11.778 it means you are still within range of the north beam - no harm done except for a couple of minutes wasted effort!) You might also find that the Transport Stream value is different from 07d4. The frequency 12.129 for example equates to Transponder 22 with a value of 07e6.

As an alternative to 12.129 you can also try 12.051 or 12.207. Apparently the 3 choices each work better in different parts of southern Europe.

On the south beam, the BBC, ITV1 and 2, Channel 4 and Five are not available (though S4C, the Welsh Channel 4, is), nor are some of Sky's premium channels such as movies and sport. Nevertheless, there is still plenty of choice including Sky One, Sky News and Turner Classic Movies.

Unfortunately for people travelling to the eastern Mediterranean (Greece for example), all the Astra 2 beams are marginal at best, at least with the size of dish that would normally use. With luck you might get a signal on either the north or the south beam, but be prepared for nothing at all.

Now that the UK terrestrial channels are difficult to receive in southern Europe you might wish to consider tuning instead into the Astra 1 system, which covers that area well. Some people have said that they have managed to get excellent reception from Astra 1 with a small minidish and could get a number of English-language channels including Sky News and BBC World (both subscription-free).

Astra 1 can be found on default transponder to 11.597, V, 22.0, 5/6. With an elevation of 19°E and see what happens. You should get Network ID 0001 and Transport Stream 0421. If you get a signal, you'll then have to put Sky News and BBC World into Other Channels. The details are:

Sky News	11.597	V	22.0	5/6
BBC World	12.285	V	27.5	3/4

For information about any other channels go to [http://www.ses-astra.com/tv-radio/guide/lineup/markets/D\\_digitaltvfree.htm](http://www.ses-astra.com/tv-radio/guide/lineup/markets/D_digitaltvfree.htm)

### Getting BBC/ITV in poor reception areas.

The BBC and ITV both transmit their satellite signals via Astra 2D. This has a much narrower beam than the 2A and 2B satellites and therefore the signal becomes rapidly weaker and more difficult to receive as you travel away from the UK. There are several things you can do;

1. Try a bigger dish.

However there is a limit to how large a dish you can use, because of (a) the impracticality of carrying it, and (b) the effect it will have on the remaining strong signals on the north and south beams in overloading the DigiBox.

2. The other thing you can do is to check that your existing equipment is performing to its maximum efficiency;

Check the accuracy of the alignment, and a the skew of the LNB.

Checking the signal quality bar on the Signal Test screen won't do this adequately - it will only display the quality of the signal transmitted on the default transponder. To check the 2D signal, do the following: -

Go to the installer's menu by pressing Services, 4, 0, 1, Select (pressed quickly in succession), then choose 5 to select Manual Tuning. Now enter the frequency for say BBC2, which is 10.773, H, 22, 5/6, and select Find Channels. This should give you a screen similar to the normal Signal Test screen, but for the 2D beam. Now tweak the dish, paying particular attention to the LNB skew, to get the signal quality bar as high as it will go. This will maximise the dish alignment for the 2D beam.

