



Satellite for Caravans

(using a Sky digibox)

Don't let anyone tell you it's complicated or needs an expensive satellite finder. It isn't and it doesn't!

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How to do the business.

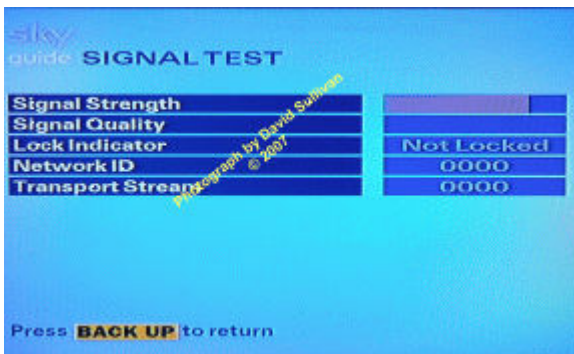
First I must warn you that pointing the dish is not just a case of doing a Harry Potter, shouting '*Instantatum!*' and hey presto, there's the picture - the first time you try it you might well end up cursing me! It took us a while to get a signal the very first time we tried it, because of the need to experiment with the angle of elevation as well as the direction, and undoubtedly practice makes perfect - it usually takes me only 2 or 3 minutes these days and rarely more than 5. An approximate vertical setting can be obtained by referring to the scale on the mounting bracket at the rear of the dish and this will be covered in the next section ("It hasn't worked! What now?"). In any case don't despair; your first attempt might be a bit long-winded but it's still not difficult and once you've done it, the elevation won't change significantly as you move from one place to another and subsequent attempts will be much more straightforward. (My dish simply unclamps from the mast for travelling, without affecting the elevation setting, but if you have to fold yours down whilst on the move it might be possible to mark the elevation scale in some way first - I leave that to your own ingenuity!) The other bit of good news is that if my experience is anything to go by there is a little leeway in pointing the dish - you have to get it reasonably spot-on but a slight error doesn't seem to matter too much. And finally, it's a definite boost to the old ego when it works and the dish locks on to a signal!

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 - there's only so much I'm prepared to do!

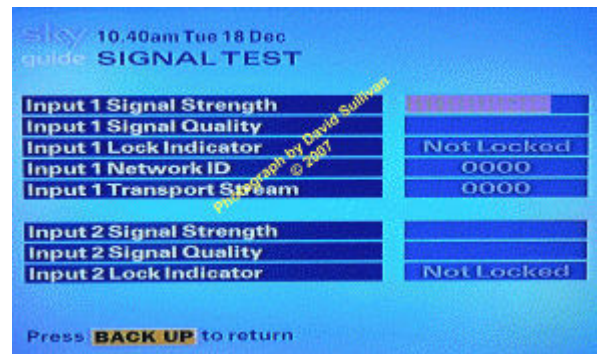
If you choose to use a separate signal meter, you should still use the following technique because it is the quickest way of ensuring that you've found the correct satellite system and that the dish alignment is fully accurate. Any references to the use of a meter in the rest of this section will be in italics and in a separate panel like this.

If you're using an offset dish, set the dish so that the rim is roughly vertical. The exact angle will vary depending on where you are in Europe but vertical is a good starting point. First, make sure there are no trees or other obstacles in the way of the dish and then connect the dish to the digibox, *via a meter if required*, 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 live; otherwise it could arc and destroy some of the electronic components - always switch off the power first. And don't do that by means of the figure-of-eight plug at the back of the set for the same reason - always use the wall socket.)** Don't worry if the remote control doesn't react immediately - after switching on the power the digibox can take several seconds before it will respond. 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 (**except that if there's no bar at all, you've probably forgotten to connect the dish! - no fool would do that, you say? - I have, twice!**). Against Network ID and Transport Stream will be 0000 (zeros). Some digiboxes display an immediate Signal Quality reading, others don't. You should however have something in the Signal Strength bar.



Standard Sky digibox
Screen images copyright BSkyB

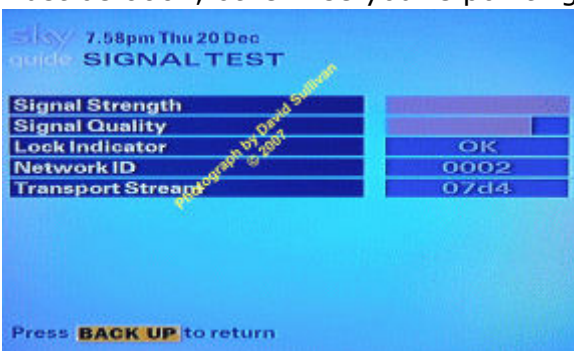


Sky Plus digibox
Screen images copyright BSkyB

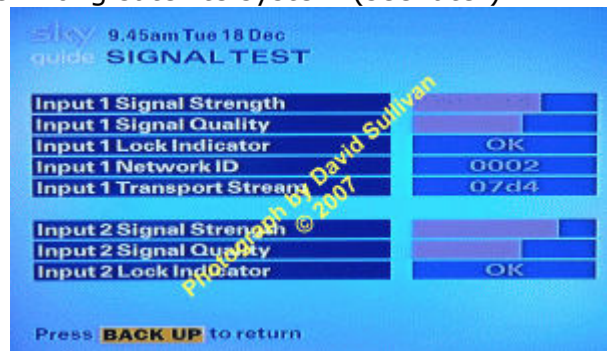
Apart from the obvious one of not connecting the dish, a zero Signal Strength can also be caused by a faulty connector, and I've had any number of queries about that so if you get no strength bar and the dish is definitely connected to the digibox, see [this separate page](#) for how to correct it. (If you've already printed this page out and don't have access to a PC, basically you have to make sure that the central copper core of the cable is fully isolated from the outer screening layers. In particular the braid has very fine filaments and it is all too easy for one to get trapped inside the connector and short across to the central core. If this happens you won't get a signal. Remake the connection.)

If you're using an offset dish, set the dish so that the rim is roughly vertical. The exact angle will vary depending on where you are in Europe but vertical is a good starting point. **(This is important - one of the most frequent mistakes made by newcomers to satellite dish aligning is to aim the dish too high. The signal has to strike the dish at an angle so that it is reflected downwards to the LNB.)** Direct focus dishes such as a Multimo, on the other hand, do have to be aimed directly at the satellite and you should refer to the elevation scale marked on the dish. 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 (see later).



Standard Sky digibox



Sky Plus digibox

(The satellite is actually situated at 28.2°E of S, 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 (for example, if you travel to Constanta on Romania's Black Sea coast, which just happens to be on Longitude 28°E, your dish will need to point directly south.) The further west you travel, the more easterly the satellite system will appear to be, and at its most extreme around Lisbon it will be fully 50°E of S.)

Some people prefer to start to the east and work southwards, on the basis that the Astra 2 system is the most easterly of all and therefore the first to be reached as you swing the dish round.

As soon as the Network ID and Transport Stream values change from zero a digital signal is being received. **It really is as simple as that.** Clamp the dish, then press the Backup button on the remote control 3 times to return to the normal screen (on some digiboxes, pressing the Sky button once will also work, thus saving you 2 presses!). Finally sit back with a cool glass of beer and enjoy the unfailing gratitude of your family and the envy of the people in the next caravan.

If after aligning the dish, you get a signal but there is interference on sound or vision, it is almost certainly caused by the dish elevation or direction being slightly out of alignment. Move the dish very slightly and carefully up/down/left/right and watch the Signal Quality bar on the Signal Test screen for the greatest value. Anything over about 50% should give good reception.

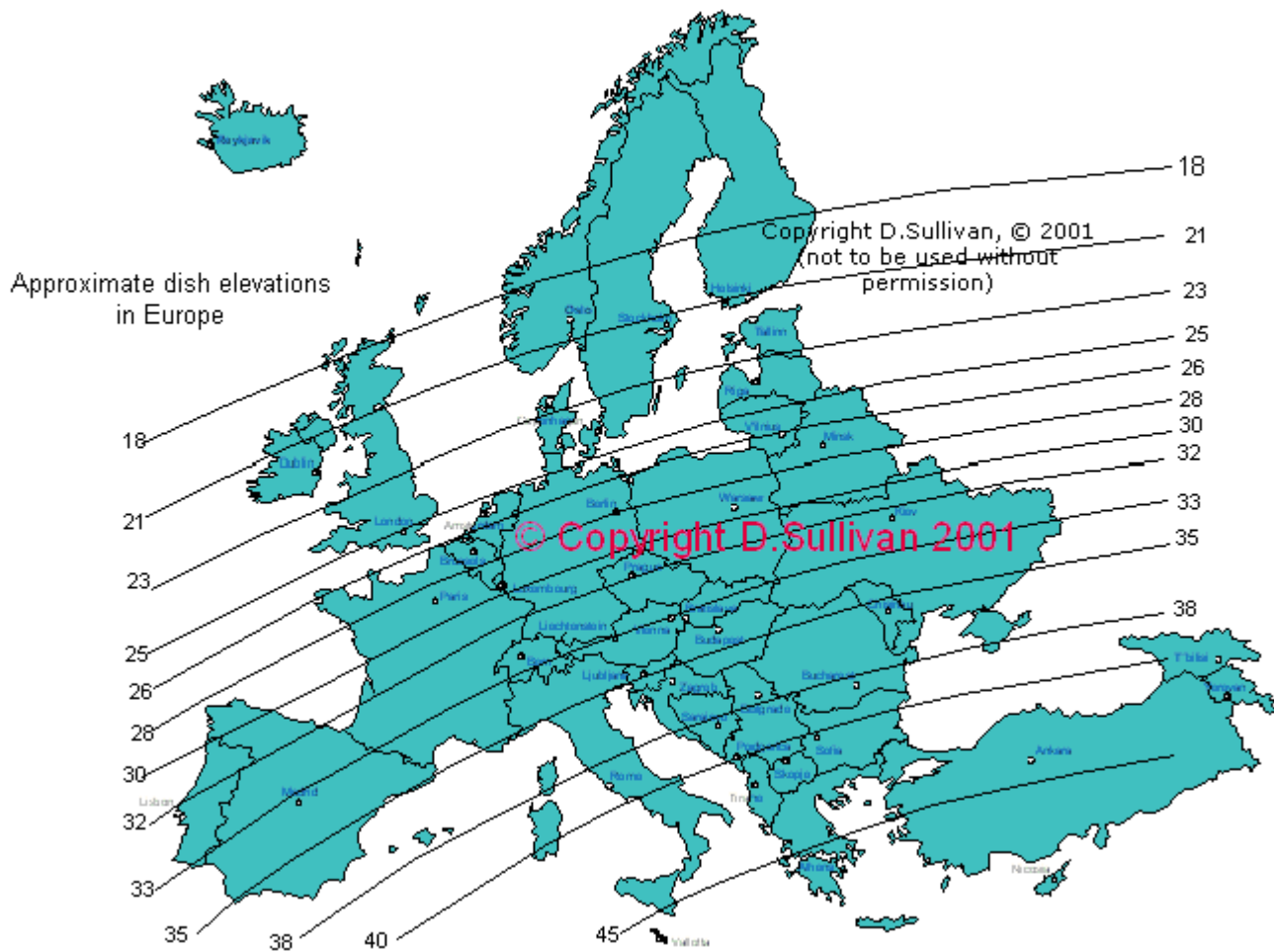
If you want to use a signal meter, I suggest you swing the dish until you get the highest needle deflection or audible tone (though see the following note) then maintaining that horizontal angle, raise or lower the elevation of the dish to see if the meter will go higher still. At the highest signal level, watch the screen for the digital readout changing.

(Just remember one important thing however. You'll probably find that the signal strength fluctuates up and down as you swing the dish around. That's because the meter will pick up signals from more than 1 satellite system. Don't make the mistake of assuming the strongest signal is the right one because that might well be Astra 1! If the Network ID doesn't change to 0002, then you're not pointing at the right satellite system. Swing the dish further to the east to get to Astra 2.)

It hasn't worked! What now?

OK, I admit it, sometimes it isn't quite as simple as that! There are one or two things that can go wrong. For example, it is possible to get a different set of values that will not produce a picture. Because there are several different satellite systems between south and south east, it is possible for the digibox to pick up a signal from one of them instead of Astra 2. However, your box isn't programmed to decode those signals and therefore no picture will appear. A common error is to assume that Astra 2 is actually at 28.2° E (equivalent to a compass bearing of 152°) from wherever you happen to be. In fact as explained above, it will generally be further to the east than that. In Britain for example, the compass bearing will be roughly 145°, fully 7 degrees further to the east than you would expect. If you swing the dish from the east and thus approach the satellite from the other direction, Astra 2 is the first system you will reach, thus reducing the possibility of catching another system by mistake. Remember to switch the power off to the digibox for 30 seconds first in order to reset the readings back to zero.

If the zeros remain unchanged, and assuming there is no obstacle in the way, there are 2 possibilities. 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. (My dish



[If you're using a domestic minidish, the scale marked on the dish can be very misleading. I've had reports from people who reckoned the scale was indicating an elevation of 15 to 20 degrees higher than the above diagram suggests. As a general guide, in northern England the dish face should be roughly vertical. Remembering that the elevation rises by about a degree for every 100 miles you travel southwards, you should be able to estimate how much higher to tilt the dish - not much is the answer; even in southern England the dish face will be barely above vertical. It only really starts to point significantly upwards as you travel down through France.]

The other possibility, especially if this is your first attempt, is that the cable connections have been assembled wrongly. I have had any number of queries from people who found that to be the problem. In 2 instances, without mentioning names, both units were manufactured by supposedly reputable companies, well known to any caravanner! You need to make sure that at each end of the cable, the copper-mylar foil and braided copper shield are properly pared back from the central core and that there is no possibility of them touching.

If after aligning the dish, you get a signal but there is interference on sound or vision, it is almost certainly caused by the dish elevation or direction being slightly wrong, in which case a minor adjustment will correct it. At this stage it's worth going back to the Signal Test screen and watching the quality bar for the greatest value. After making that adjustment, it might be necessary to power down the digibox again to reset it and get it to recognise the slightly different signal.

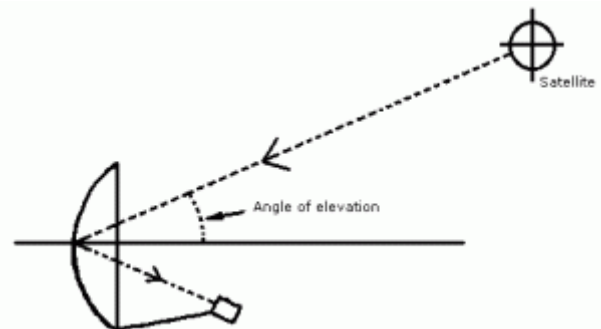
There's no getting away from the fact that one's first attempt can be a slog, for the reason already mentioned about getting the dish elevation right. Theoretically, the technique is infallible - given patience and a clear line of sight to the satellite, you WILL get a signal. The problem is that, especially if you have a large dish, your accuracy in aiming it might have to be

pretty high, and it could be all too easy to swing the dish right through the signal beam and out the other side without realising it. 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 at that elevation before altering it slightly and scanning again. I usually swing my dish about 1 degree at a time and at roughly 1-second intervals. (However, judging from what people have told me, some makes of digibox react faster than others, with Panasonic being the fastest. So if you have a different make, you might need to increase the pause between each movement of the dish.)

Note that once a signal has been detected the digibox will retain its settings, so if 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 screws 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.

Just to clear up a query raised by another reader, 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 face might well be almost vertical and in the far north of Scotland it could even appear to point down into the ground!

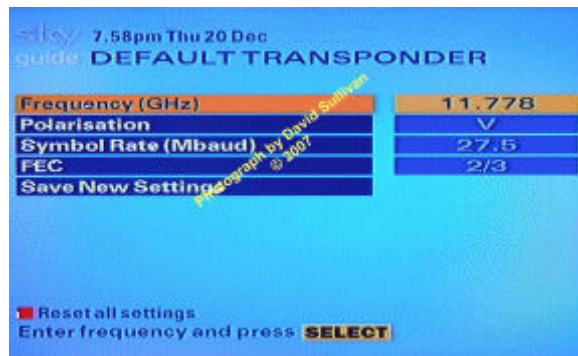


Getting a signal in the southernmost parts of Europe.

The Astra 2 system transmits a north beam and a south beam, (and also, from the Astra 2D satellite, a narrow beam that carries ITV and the BBC). When British 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. For other parts of Italy and the Iberian peninsula 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 the south beam in order for it to work. The process is straightforward and your viewing card will continue to work.

Incidentally, you know how they keep saying on TV, "Don't try this at home"? Well, this is a case in point. There's no point in practising the following routine before you actually leave for southern Europe because your digibox will simply ignore you. As long as it can receive the north beam, it will say "Up yours matey, I know best". So wait until you can no longer receive a conventional signal and then proceed as follows.

Using the remote control, press Services and then 4. Now in succession, press 01 (without pausing between the 0 and the 1) and then press Select. This is an undocumented sequence which gives access to the Installer Setup screen. Press 2 to get the Default Transponder screen. (Incidentally, don't be tempted to experiment with other features in the installer setup facility - you could seriously mess up the box which is why the routine is undocumented. Keep to the instructions!)



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. You should still get the Electronic Programme Guide (EPG). 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 12.207, 11.817, 12.051, or 11.739 in that order.

Once the dish has acquired a signal, you might still have a problem. The normal sequence when a Sky box starts up after a power-off is that it does a listings search and then displays the Sky welcome screen (EPG 998). The problem is that the welcome screen is on the north beam which obviously isn't available to you (otherwise you wouldn't have had to change the default transponder). So having failed to find the welcome screen, the box returns a 'no signal found' error message. All you need to do is key in the 3-digit code for say Sky News (501) or any other channel on the south beam and you'll then get a picture.

[On the extremities of the north beam footprint, you might suffer difficulties with the digibox. This is because the digibox will switch to the north beam default transponder if it can, but if the signal drifts in and out during a 24-hour cycle, you might find you have to keep changing the default transponder back to the south beam in order to get any reception at all.)

On the south beam, the BBC, ITV1, 2 and 3, 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. You will also get BBC Radios 2 & 4.

Unfortunately for people travelling to the eastern Mediterranean (Greece for example), all the Astra 2 beams are marginal at best. With luck you might get a signal on either the north or the south beam, but be prepared for nothing at all. See the various reports in www.astra2d.co.uk for more details of signal reception around Europe.

Getting BBC/ITV in marginal areas.

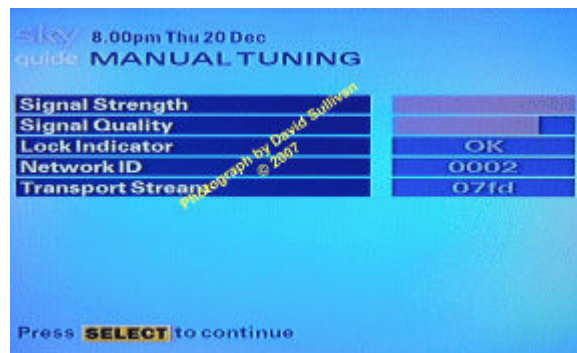
As described elsewhere in this article, the BBC and ITV both transmit their satellite signals via the newer Astra 2D satellite. This has a much narrower beam than the 2A and 2B satellites and therefore the signal becomes progressively weaker and more difficult to receive as you travel away from the British Isles. There are several things you can do to lessen that problem, though the likelihood is that at some stage you will travel too far for the signal to reach and you'll eventually lose the BBC and ITV channels. The single most important thing you can do is to use 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.

Some digiboxes are better than others at dealing with wide disparities of signal strength, and

even individual models vary from others by the same manufacturer. For this reason, and because I don't have access to extensive technical information of that sort, I'm **not** in a position to make recommendations. If anyone else wants to supply such information, I'll be happy to publish it here and credit you accordingly.

The other thing you can do is to check that your existing equipment is performing to its maximum efficiency, and this means ensuring that your dish is accurately aligned and that the LNB is properly skewed. 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, 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.



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