

The “Grey Nomad’s” Guide to Satellite Dish Setup Procedures.

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THE WANDERING TEWS



About this Document.

It is hopeful that this document may give an idea of setting up a Satellite dish to receive 'OPTUS C1' signals. It will also give some information on activating an Aurora Smartcard.

It should be noted that the unit used to receive satellite signals will sometimes be referred to as a Set Top Box and sometimes as a Decoder Box. Either of these terms can be used.

My Satellite History.

I have regularly used the following procedure to set up my satellite dish in various locations and have had no trouble at all in getting a signal.

I have a web site, www.wanderingtews.com, on which this document and other normal TV reception information is available for free download. See the TV Reception page on the site. Feedback on this information would be greatly appreciated, contact me via the web site.

Purchasing a Satellite system.

I am not going to make any recommendation for any system, as I found that most pre-configured systems had some bad points, eg **cost** or some equipment I was not happy with, then I was also a novice. I basically bought parts to configure my own system, but I appreciate not all have the technical experience to be able to do that. It may be taking a bit of a chance with which ever system is purchased, but I do stress that there might not be anything wrong with any system that is on the market for the average user.

It must be stressed at this point that there are a few things and points of information you must obtain from the place of purchase.

- They must provide all leads and tuning meter.
- Get all information about getting an Aurora smartcard so one can receive coded transmissions, not all normal free to air channels are readily accessible. (The test channel on Optus C1 gives details on where to purchase a card if not supplied.)
- Find out from them how one goes about getting access to coded transmissions (activating the Smartcard), fax forms could be required. Bearing in mind that the procedure is different for receiving channels for WA than it is for the rest of Australia. (Rough details are provided later.)
- See if they have information about bearings, elevation, LNB Skew and setup procedures, if they have it may be more suitable than mine.(See my web site www.wanderingtews.com for a list of these.)
- Remember if one intends camping out without 240 volt power and intend using satellite, a 12 volt unit could be very handy.

Channels received.

Some sales people will tell you that you will receive ABC, SBS, 7, 9 and 10, this is not strictly true. ABC and SBS yes, but the other stations, such as Imparja and Central 7 for eastern Australia, and GWN and WIN in WA, are primarily 7 or 9, but sometimes show programmes from 10. There is no channel 10 as such.

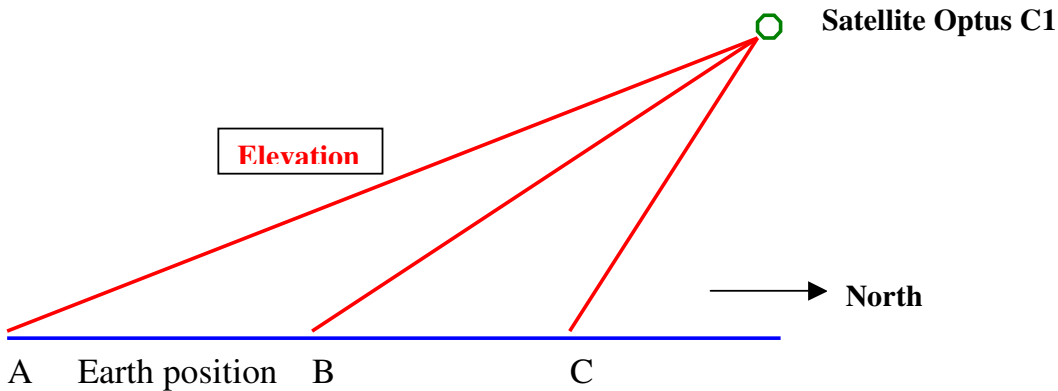
(Check out another booklet called 'VAST Satellite Digital TV' as this is a new system commencing in June 2010. This info will ultimately be placed in this document.)

Theory.

There are quite a number of Satellites in the sky, located at different positions around the earth. These satellites are always in the same position in relation to the earth, so once a dish is tuned into a particular satellite while in any particular location the dish never needs moving whilst in that same location.

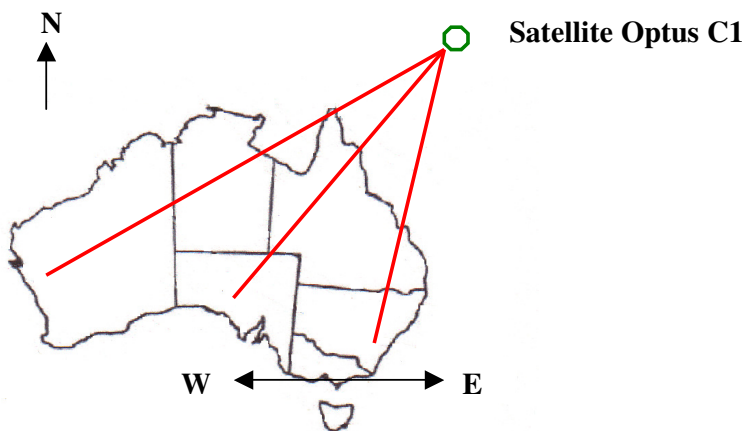
The Satellite the 'Grey Nomad' is likely to use in Australia is 'Optus C1', which is located somewhere above Papua New Guinea.

Elevation.



The Sketch above shows the relationship between Satellite Optus C1 and three different locations within Australia, A is further south than B or C. One can see that position A requires a lower Elevation than positions B or C, so it can be seen that depending on ones location in relation to north and south the elevation will vary, being higher the further north one is.

Compass Bearings.



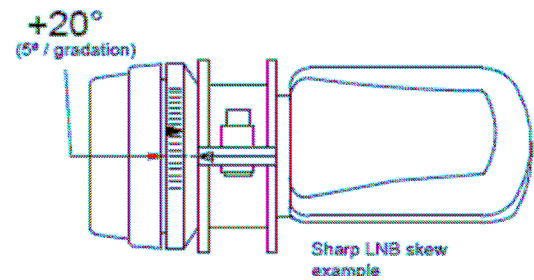
From the map of Australia above one can see that wherever one is in relation to east and west the compass bearing will vary to point at the satellite. In WA one would have to point the dish further toward east, or further from North, than in SA or NSW.

LNB skew

The angle of rotation of the LNB within its clamp. The polarization angle of the LNB must be aligned with that of the satellite. This angle is set by means of the scale on the LNB, as shown in the example at right.

The LNB skew will vary in relation to being east or west within the country.

This adjustment does not effect the dish tuning levels, rather than the individual channel levels seen on the info bar when changing channels.



A Tip to remember which direction is +ve or -ve:

If there are no markings on the LNB, generally with the cable pointing directly downward the LNB will be at zero.

Standing in front of the dish, with the LNB on the centre mark, turning the LNB Clockwise is to the +ve direction.

Standing in front of the dish, with the LNB on the centre mark, turning the LNB Anti-Clockwise is to the -ve direction. **Anti meaning -ve.**

Note:

I have now come across an LNB that does not strictly adhere to the above rules, so be careful, you may have one of these.

The brand was a **SWISS**, and the sticker on the unit with degree markings did not agree with the above. In Melbourne to get a signal the unit was set at approx. 0 degrees, according to the markings, and the cable was at the -35 Degrees position in reference to the above explanation. Given these discrepancies I can only conclude that some LNB's differ from the above explanation, and if this is your case then you will have to experiment to find the correct position wherever you may be in the country.

Tuning meter.

One of the easiest methods of tuning a dish is with a tuning meter, they do come in analogue and digital, and for now I will describe the use of an analogue meter. I would recommend the use of a digital meter as they are easier, but more expensive to purchase.

The meter has to be installed in line with the aerial lead as shown on the connectors, and close to the dish so one can watch the meter while adjusting the dish. The Satellite decoder box must be turned on and all aerial leads must be connected as the decoder box provides power for the LNB and the meter.

The meter actually reads a test signal from the satellite so the stronger the test signal the closer the dish is tuned in. The test signal is also the same from all satellites so bear in mind you can sometimes actually tune into the wrong satellite, resulting in no picture. If this occurs recheck the compass bearing and elevation and restart from that point.

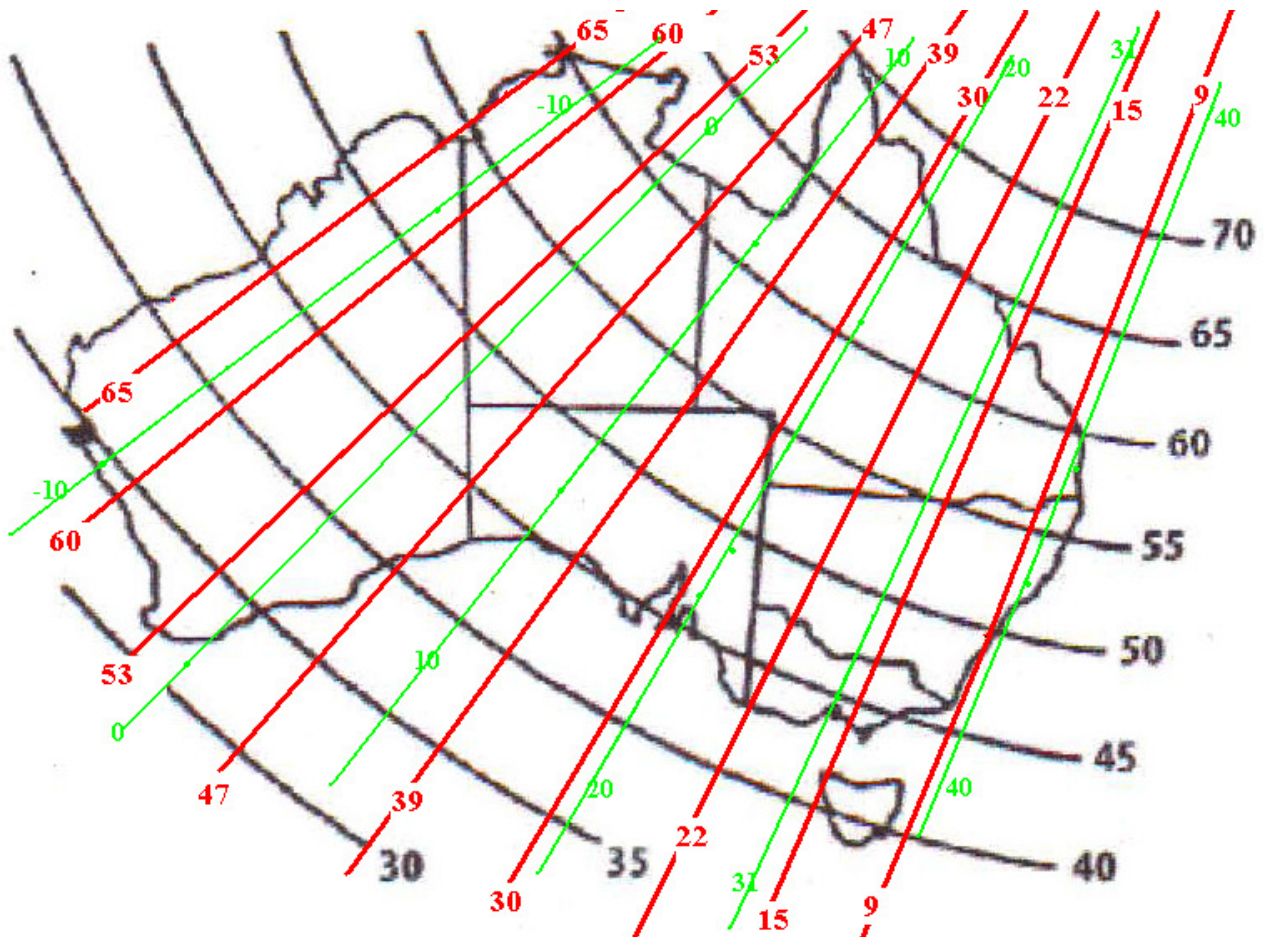
Procedure.

Below is a chart consisting of an outline map of Australia, several black arcs traversing across the map and several red and green lines traversing from roughly north to south on the map. This map can be used as a rough guide for required figures.

The Black arcs represent the elevation that is required at different locations.

The Red lines represent the compass bearing that is required at different locations.

The Green lines represent the LNB skew that is required at different locations.



Following this chart all one has to do is pin point their location within our great land, then the **compass bearing**, **LNB position** and elevation can be worked out reasonably accurately, although this chart is not known to be exactly correct, but is close.

Another document on my web site www.wanderingtews.com contains a list of these details for many individual towns/cities.

My Tuning method.

1. Make sure all cables are connected, including the tuning meter. Turn on the Set Top Box, and tune to channel 1, the info channel, and turn the TV volume up loud enough to hear at the dish position. This will allow you to know when Optus C1 has been found by hearing the test tone on that channel.
 - a. **Do not turn on the STB until all cables are connected.**
2. After determining the compass bearing required I place my dish stand on the ground with one leg pointing in the direction of the compass bearing. This then allows me to have an easy reference point when the dish is mounted on the stand.
 - a. **It is important to note at this stage that the Dish stand must be level with the upright as close to vertical as possible.**
3. Position the LNB Skew as per details provided.
4. Most, if not all, dishes will have elevation markings on the adjustment area of the frame work. Determine the elevation required and adjust the dish height according to the markings.
5. At this stage leave all adjusting bolts slightly loose as you will have to move the dish both sideways and up-and-down, but they must be tight enough not to allow any stray movement.
6. Remember never stand in front of the dish while tuning, you will block the signal.
7. Turn the volume control on the meter up till a mid range reading is shown on the meter.
 - a. Turn the dish left and, or, right slowly by a few degrees only at a time until an increase in the meter level occurs.
 - b. If the satellite can't be found, lift the dish elevation up, or down, a few degrees, return to original compass bearing and start again.
 - c. When the meter reading level goes off the top range wind the volume control down until a mid range reading is once again shown.
 - d. Continue to move the dish left or right slightly, repeating steps c. and d. several times until the maximum possible reading is received.
 - e. Without allowing the dish to move left or right, you will now see what I mean about having the bolts reasonably tight, adjust the dish up and, or, down following the same procedure until the maximum signal is once again received.
 - f. At this point the dish should be fine tuned, but if you wish you can once again very finely move the dish sideways to check maximum signal.
 - g. At this stage check picture reception, or level meters have gone **green**, to verify the correct satellite is received.
 - i. If tuned to channel 1, info channel, as in step 1, the test tone should now be heard from TV.
 - ii. If the correct satellite is not found, move the dish up or down just a few degrees and restart tuning at step 7a. to find the correct satellite which should be close.
 - h. When the correct satellite is found, now is the time to tighten all bolts, **carefully so as not to move the dish setup.** With the sideways movement bolts make sure an equal movement is given to each bolt, otherwise tightening may move the dish to one side. The same can be the case with the elevation bolts.

8. LNB positioning: LNB should be positioned as per chart/map above or other document on web site, and if individual channel signal level is low LNB may have to be finely tuned. I have not found the LNB skew to be extremely critical, but must be close.

Digital tuning meter.

I use a digital meter, model Satplus Digisat Meter 777, and find it a lot easier than an analogue meter, but is more expensive to purchase. I purchased mine from the Satplus web site. The advantages are:

1. The meter gives a continuous reading, with an attenuator switch when level is too high, that does not need adjusting as with the analogue meter.
2. The digital LED display is much easier to read.
3. The audible output can be turned off or on as required.
4. This unit can be used with an external power pack, not supplied, instead of relying on power from the decoder box. One can now tune a dish without having the decoder box connected if the external power pack is used.

Activating your Aurora Smartcard.

1. Vast service.

- There is a new Satellite digital TV service called VAST (Viewer access Satellite Television). Information about VAST can be obtained from a booklet found on my web site. http://wanderingtews.com/?page_id=257 or visit www.mysattv.com.au .
- Tuning of the dish is the same as above with the exception that the VAST decoder will not give any signal information until tuned in, so a tuning meter must be used for this service.

2. Old service.

Note: Whenever a request is made for card activation, the dish must be tuned into Optus C1, and be able to watch the test channel (usually channel 1) and the card must be inserted with the decoder box turned on until the card is activated.

A request can be made to Optus via email to sss@optus.com.au or fax to 1300 555 221 for activation of ABC and SBS regardless of where you are in Australia. The following information must be provided:

- Name
- Address
- Contact phone number (mobile or home)
- Decoder brand (Strong, Coship, Humax, Emtech etc)
- Smartcard number

The other channels will depend on if you are in WA or the rest of Australia, license laws prevent WA channels being transmitted elsewhere, and vice-versa with Imparja and Seven Central, so approval can only be given for GWN and WIN when travelling in WA, and Imparja and Seven Central when travelling in the remainder of states.

If in WA:

- A request can be sent to Optus, as above, for activation of GWN and WIN, but with a brief itinerary of your travels in WA. This request can be made on the same request as ABC and SBS. Again the Decoder box must be left on until activation is complete. (could be up to 1 business day)

- If after this is done you travel out of WA, follow the following steps for activation of Imparja and Seven Central. Upon activation of Imparja and Seven Central, GWN and WIN will be disconnected.

If elsewhere in Aust:

- Once ABC and SBS have been activated, and can be watched, a request can be made to Imparja by email to decoders@imparja.com.au or fax to 08 89530322. (**Note:- Imparja have an administration fee of up to \$55.00 for each connection, their reply to your email will explain all**)
- A separate request must be made to Seven Central by email to decoderregistrations@scbnetwork.com.au or Fax to 07 47262109. Registration can also be done online at the following address:- www.southerncrosscentral.com.au being sure to check the map for their coverage areas at that site. If one stipulates traveling in a non coverage area, e.g. Melbourne or most of the East coast, the activation will not be granted. (**There is no charge for connection to Central 7**)
- The same information as above must be provided with both these requests along with a travel itinerary in states other than WA. Again the Decoder box must be left on until activation is complete. (could be up to 1or 2 business days)
- If after this is done you travel into WA a request must be made to Optus for connection to GWN and WIN, upon which Imparja and Seven Central will be disconnected.

If faxing requests, forms will have to be provided from whomever provides the Smartcard. I will not provide copies of these as they may be upgraded at some stage without my knowledge. (**Check out another booklet called 'VAST Satellite Digital TV' as this is a new system commencing in June 2010. This info will ultimately be placed in this document.**)

Happy Watching.

Hints.

- Place a length of plastic conduit on the pipe on which the dish is mounted. Obtain a piece of conduit hopefully to fit neatly on the pipe, insert a saw cut along one side for the entire length of the conduit to allow tightening when the dish is tightened on the pipe. Place the dish clamps on and around the conduit, this will allow easy turning of the dish when tuning and prevent the teeth on the clamps digging into the metal pipe.
- If, as in my case, the conduit is exactly the same size as the pipe (40mm), or slightly smaller, then it will be hard to fit on the pipe. To overcome this, after placing the saw cut in the conduit, immerse the conduit in a pot of very hot water to soften it, then quickly place the conduit on the pipe, this will enlarge the conduit to be a snug fit.
- I have now come across an LNB that does not strictly adhere to the above rules on page 4, so be careful, you may have one of these. The brand was a **SWISS**, and the sticker on the unit with degree markings did not agree with the rules on page 4. In Melbourne to get a signal the unit was set at approx. 0 degrees, according to the markings, and the cable was at the -35 Degrees position in reference to the above explanation. Given these discrepancies I can only conclude that some LNB's may differ from the above explanation, and if this is your case then you will have to experiment to find the correct

position wherever you may be in the country, or buy a new one that does comply with the above.

NOTES: