

# 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. As the Aurora analogue system has been turned off this document will only refer to the new VAST system.

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](http://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.

## **Important notice before proceeding.**

Before proceeding it must be verified that you are eligible for reception of VAST TV by visiting <http://www.mysattv.com.au>

## **Purchasing a Satellite system.**

I am not going to make any recommendation for any equipment anybody should purchase, most systems should be ok, but bear in mind if purchasing a new system now one should be looking at the new VAST system, as the old aurora system was turned off in December 2013.

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.

1. They must provide all leads and tuning meter.
2. Get all information about activation of smart cards. These details should be included with the Decoder, but check anyway. (Details of this procedure are provided later.)
3. 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](http://www.wanderingtews.com) for a list of these.)
4. Remember if one intends camping out without 240 volt power and intend using satellite, a 12 volt unit could be very handy.
5. If you are purchasing as a traveller I would suggest that you do not allow the place of purchase to activate your smart card for you unless you are personally familiar with the procedure. DO IT YOURSELF, you need to get used to it.

## **Channels received**

### **1. VAST.**

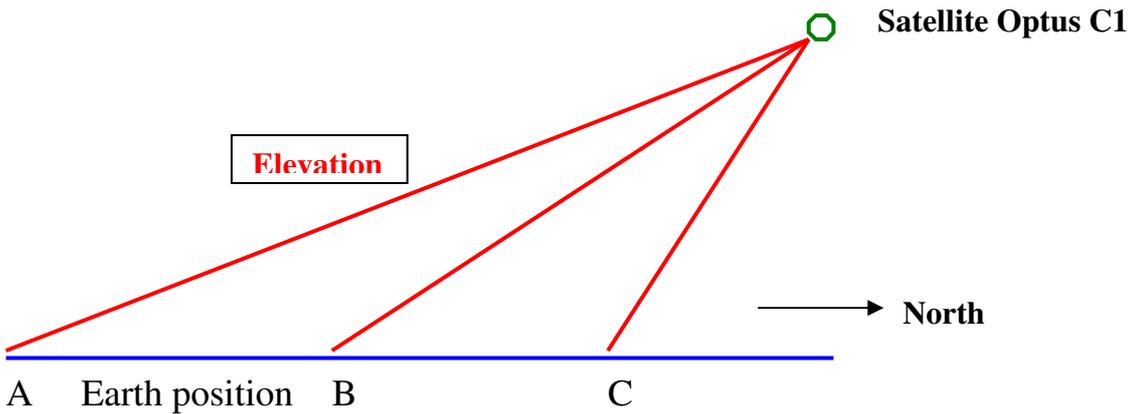
- a. All digital channels that are normally received in a capital city, or any area with terrestrial digital transmission, including wide-screen and HD.
- b. Transmission is also in different time zones so one can watch local channels from each state, or time zone. An application for this reactivation is easily achieved by ringing 1300 993 376 when moving from one time zone to another.
- c. News from all region terrestrial TV transmission areas are shown on dedicated channels so one can watch their local home news while travelling.
- d. (Check out another booklet on my web site [www.wanderingtews.com](http://www.wanderingtews.com) called 'VAST Satellite Digital TV' as this is a description of my experiences with activating and reactivating VAST.)

### 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.

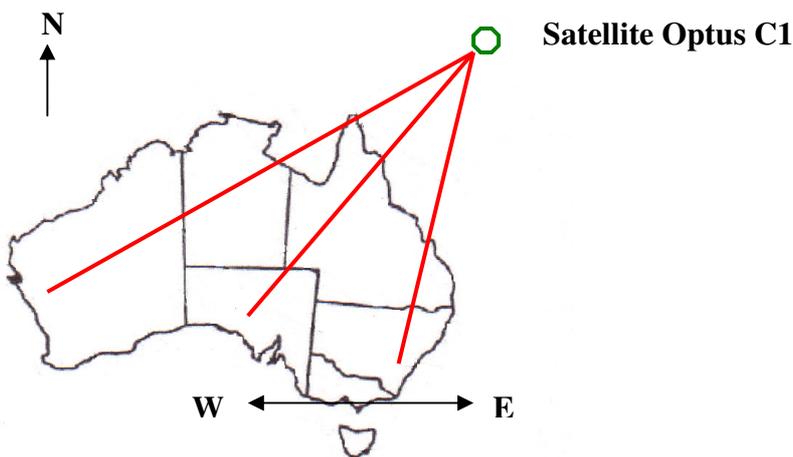
The Satellite the 'Grey Nomad' is likely to use in Australia is 'Optus C1', which is located somewhere above Papua New Guinea.

### 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 one's location in relation to north and south the elevation will vary, being higher the further north one is.

### Compass Bearings.



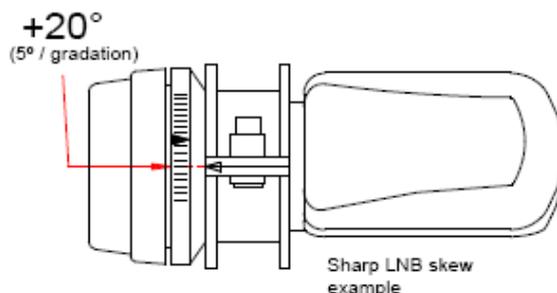
From the map of Australia above one can see that wherever one is in relation to east and west the compass bearing will vary to point at the satellite. In WA one would have to point the dish further toward east, or further from North, than in SA or NSW.

## 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 will affect the Quality reading in Signal Detection section of Menu.



## 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.

**A new digital meter model SF3239 Posi ID Sat finder is now available from [www.satplus.com.au](http://www.satplus.com.au) and is a must for the novice user.** (see notes later)

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.

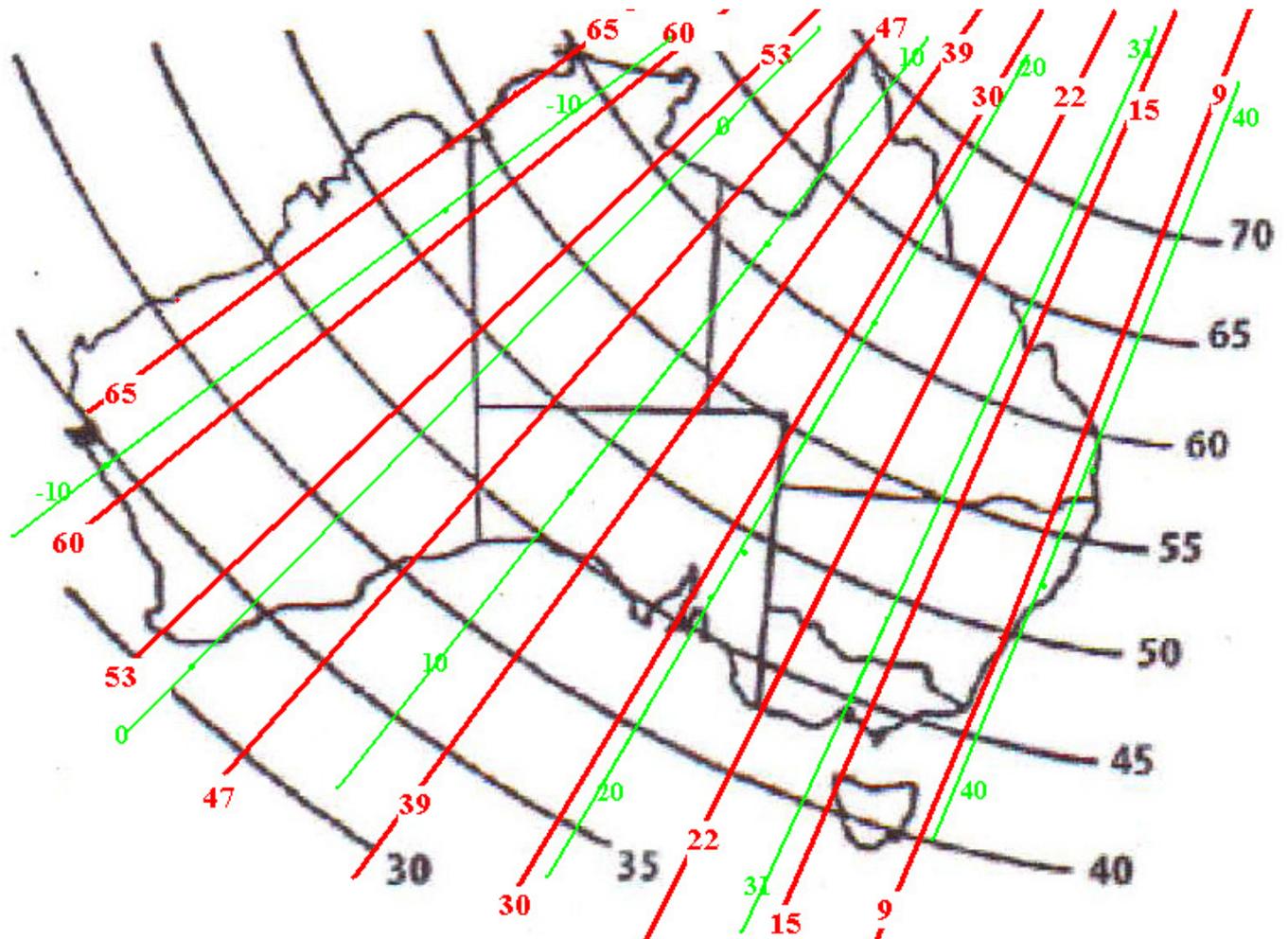
## Procedure.

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.

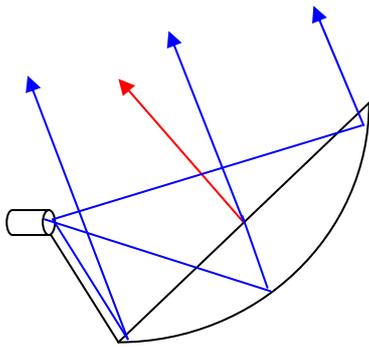
Another document on my web site [www.wanderingtews.com](http://www.wanderingtews.com) contains a list of these details for many individual towns/cities.

## Points to consider

### **Dish positioning. (considering trees)**

A problem I have experienced with people trying to find the satellite through a small hole in trees is that they do not appreciate the actual direction that the dish is pointing.

Below is a picture of a typical dish to hopefully demonstrate that they do not actually point in the direction that one would think.



The **RED** arrow indicates the direction one would normally think the dish is pointing toward the satellite, but in fact the dish is actually pointing more in the direction of the **BLUE** arrows. This is due to the positioning of the LNB and can be demonstrated by drawing an imaginary line, as the blue ones, from the LNB to anywhere on the dish and the reflective angle will be in the direction of the blue lines, meaning that any signal from the satellite from the reverse direction of the blue lines will be reflected off the dish onto the LNB.

Another demonstration can be, that after you have the dish tuned to the satellite estimate the angle of the red line, at right angles to the flat front of the dish, and in Darwin, for eg with my dish, this was something like 45 degrees. The actual elevation for the dish, in Darwin, is 65 degrees, where the blue lines go, so the difference with my dish is about 20 degrees. When you have worked out this differential angle for your dish it will help to realise that positioning of the dish will be different than initially thought **to find the hole in the trees.**

### **Powering up Decoder.**

As explained further it is recommended to plug in all cables to the dish before turning on the power to the decoder for the following reasons, consider that the LNB is powered from the decoder.

1. Stories I have heard are that if one connects cables to the LNB with the decoder powered on, the LNB can be damaged with a power surge. After tuning the dish I have always disconnected my meter and reconnected the cables with the decoder turned on and I personally have not experienced this problem, but it sounds logical and is not to say it won't happen, so it would be advisable to follow this practice.

### **Short cable LNB to meter.**

I prefer to leave this short cable permanently connected to the LNB and tied to the LNB support arm to the rear of the dish. I would suggest that if the cable at the LNB is continuously plugged in and unplugged the small contact plates inside the connector could eventually wear out, so I prefer to then join my cables with a joiner as this would be easier and cheaper to replace if it does wear out.

In stating this then one must remember that the cable on the LNB must be occasionally, twelve monthly or so, be unplugged and reconnected, as if this does not occur the corrosion on the centre wire of the cable could cause a failure in the connection sometime, and this reconnection should clean the wire.

### **My Tuning method.**

1. Make sure all cables are connected, including the tuning meter. Turn on the Set Top Box.
  - a. **Do not turn on the STB until all cables are connected.**
2. **VAST system only.**

Turn on decoder and TV and wait until a searching for signal window appears.  
**At this stage, depending on the model STB, assistance to tuning details can be provided by the STB, read instructions. This assistance can comprise of dish pointing details and signal meters.**
3. 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.**
4. Position the LNB Skew as per details provided.
5. 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.
6. 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.
7. Remember never stand in front of the dish while tuning, you will block the signal.
8. Turn the volume control on the meter up till a mid-range reading is shown on the meter. (If using a digital meter, at this stage just watch the meter reading)
  - 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. (If using a digital meter press button **A** to insert the attenuator and, or, press both buttons for tone.)
  - 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 that the correct satellite has been found, i.e.
  - i. If using VAST, the TV window should now read 'Signal found' and tuning commenced.
  - 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 peg down the tripod, if not already done, fine tune the dish once more, and 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.

## 9. LNB positioning.

- a. **VAST System**, LNB can now be fine-tuned to give the maximum Quality reading in 'Signal Detection' section of Menu.

### Digital tuning meter.

I have used 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.

I now use a model SF 3239 POSI ID finder available from [www.satplus.com.au](http://www.satplus.com.au) for around \$140.00, and this meter is programmable to only see the satellite the user requires. It comes with default program settings for Optus C1, which is the satellite required for VAST and Aurora. This meter makes it even simpler to tune the dish, even without having to look at the TV, and would be a must for the novice user.

### This is how easy it is.

1. Read carefully the instructions that come with the meter.
2. Connect in line the same as any other meter.
3. When one has the screen showing the signal and quality meters start the dish tuning.
4. When the required satellite is found a buzzer will sound.
5. Fine tune the dish to obtain maximum % readings on the meters.
6. Fine tune the LNB Skew to obtain maximum % readings.
7. Decoder can now be used for TV watching.

## **Activating your Smartcard.**

**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 400 on VAST), and the card must be inserted with the decoder box turned on until the card is activated.**

### **New VAST service.**

1. Visit [www.mysattv.com.au](http://www.mysattv.com.au) and follow the prompts, or obtain information about VAST activation from another booklet found on my web site.  
[http://wanderingtews.com/?page\\_id=257](http://wanderingtews.com/?page_id=257)
2. If activating as a traveller for the first time click on the 'Travellers Registration' Button and fill out the online form. Activation should occur in a short period of time after hitting the 'submit' button on that form.
3. If activated as a Traveller, you will have to reactivate every six months, as per the instructions on the original application form. This can be done by clicking the 'Travellers Registration Renewal' button on the mysattv web site.
4. If registered as a traveller and you travel to a different state of time zone, reregistration can be done for that zone, or state, by calling the activation number 1300 993 376.

**Happy Watching.**