

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

Version Two.

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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 there are new meters and tools on the market, this version is a reprint to cover the use of these new tools.

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.

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 **the latest** 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 for a list of these.) WikiCamps is a good source.
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.
- 6.

Channels received

1. VAST.

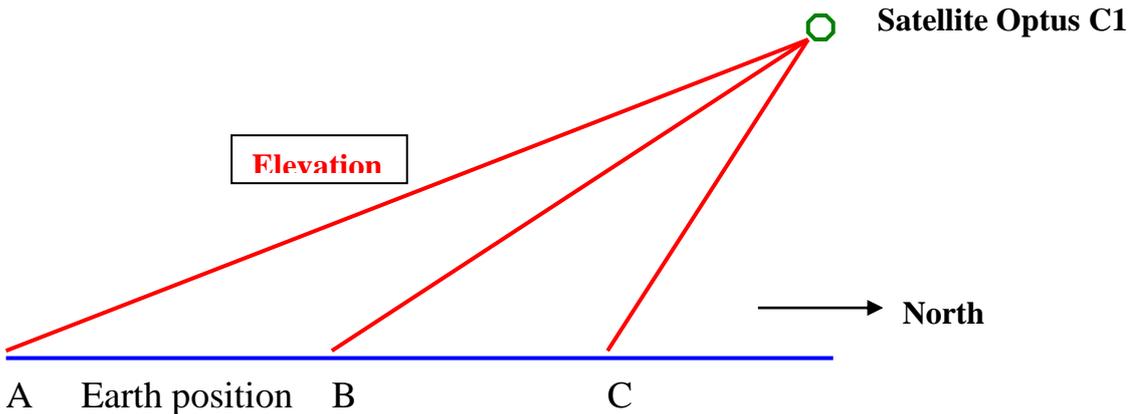
- a. All digital channels that are normally received in a capital city, or any area with terrestrial digital transmission, including wide-screen and HD.
- b. Transmission is also in different time zones so one can watch local channels from each state, or time zone. An application for this reactivation 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.

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.

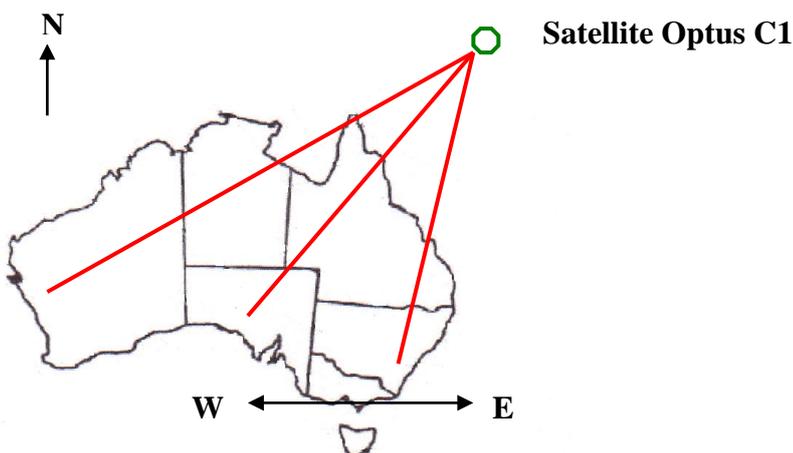
The Satellite the 'Grey Nomad' is likely to use in Australia is 'Optus C1', which is located somewhere above Papua New Guinea.

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.



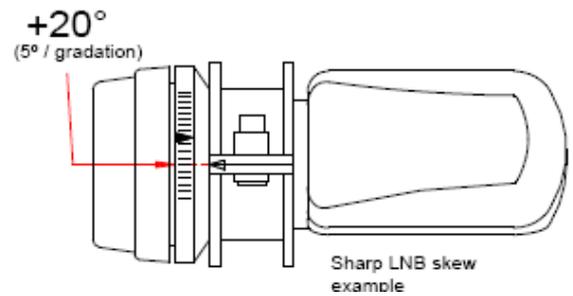
From the map of Australia above one can see that wherever one is in relation to east and west the compass bearing will vary to point at the satellite. In WA one would have to point the dish further toward east, or further from North, than in SA or NSW.

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.

Requirements for use of this booklet.

If all these requirements are met the following procedure should be very easy.

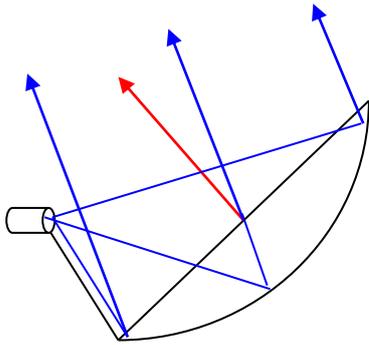
1. One must have access to accurate Satellite setup details such as:
 - a. WikiCamps phone app. (Does not give **Magnetic Bearing**.)
 - b. Web site <https://myswitch.digitalready.gov.au/>
 - c. Web site <http://wanderingtews.com/tv-reception/> C1 Satellite Alignment Settings.
2. The following tools will be required.
 - a. Manual Compass. I find phone apps are not accurate enough. (**Note: When using a compass to set Azimuth bearing, one must have access to the 'magnetic bearing' information. WikiCamps only gives 'True Bearings'**)
 - b. Clinometer. (**See use of Clinometer**)
 - c. Late model Tuning meter. One that will only see the required Satellite.

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.

Some tuning meters require power from the STB, if this is the case all cables must be connected first before powering up the STB.

Most of the late model Tuning meters have built in batteries, so connection to the STB at this stage is not necessary.

If the Tuning meter has no built in batteries, but an external power supply it would be preferential to use this instead of the STB power.

First Use of Clinometer.

As there is nowhere on the dish that guarantees the correct angle of elevation, the dish must first be tuned in to allow measurement of the discrepancy of the actual reading and the actual elevation requirement. With the Clinometer placed on the LNB arm for e.g. Take note of the difference between actual reading and the angle of required elevation. In future deduct the discrepancy reading from actual

Short cable LNB to Tuning 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.

Two methods of tuning follow. If one has one of the latest tuning meters, and accurate setup details, one of the following methods should be as easy as explained. One could even use a combination of both.

First consider dish location, it must not be obstructed, and have a clear view of the satellite.

- Using a compass as a starting point.
- Using a Clinometer as a starting point.

1. Using a compass as starter.

- a. Make sure all cables are connected, including the tuning meter. Turn on the Set Top Box, only if needed, or turn on the Tuning meter and set for tuning.
- b. Position the LNB Skew as per details provided.
- c. After determining the **Magnetic** compass bearing, place a stick or similar on the ground pointing in compass bearing in front of the dish, and with the dish elevation set forward to a minimum, align the LNB bar with the stick. This will point the dish at the correct bearing. Lightly tighten bolts on dish to hold this bearing.
- d. Lift the dish elevation up slowly until the meter sounds or shows a signal.
- e. Fine tune the dish, both bearing and elevation, until maximum signal can be achieved.
- f. LNB can now be fine-tuned to give the maximum Quality reading.

2. Using a Clinometer as starter.

- a. After discrepancy of Clinometer reading has been determined, place the Clinometer on the LNB bar and set to the adjusted reading. Lightly tighten bolts on dish to hold this reading.
- b. Position the LNB Skew as per details provided.
- c. Rotate the dish in the direction of required **Magnetic** Compass bearing until Tuning meter sounds or shows a signal.
- d. Fine tune the dish, both bearing and elevation, until maximum signal can be achieved.
- e. LNB can now be fine-tuned to give the maximum Quality reading.

Determine Magnetic Bearing.

If one only has access to 'True Bearings' and your GPS reference, the following web site will calculate the 'Magnet Bearing' <http://www.ga.gov.au/oracle/geomag/agrfform.jsp>
Fill in the details as required and click on 'submit request'.

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 and follow the prompts, or obtain information about VAST activation from another booklet found on my web site.
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.