Italian Satellite Television Installation Procedure

The information presented here is a simple "How to Guide" for the installation and setup of a satellite television receiver system for the reception of free Italian channels via satellite television in the home.

Satellite: AsiaSat 2

Channels: RAI International (Railtalia) - Italian

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WARNING

**The information presented here is a guide only.
You are requested to check with your States or Territories Occupation Healthy and Safety Rules/guides before you commence any work or installation.**

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Equipment & Parts

You will require the following equipment for reception and viewing:

- Digital Satellite Receiver (DVB Compliant)
- 2.3 Metre mesh dish (1.8 Metre is also allowable, solid or petal type)
- Good quality C-Band LNB
- C-band scalar ring & Feed Horn
- Good quality RG-6 coax cable
- RG-6 connectors
- Galvanised 70 to 90mm diameter pole.

The length should be sufficient to clear the dish from the ground or roof.

Tools

You will require the following tools to complete the installation:

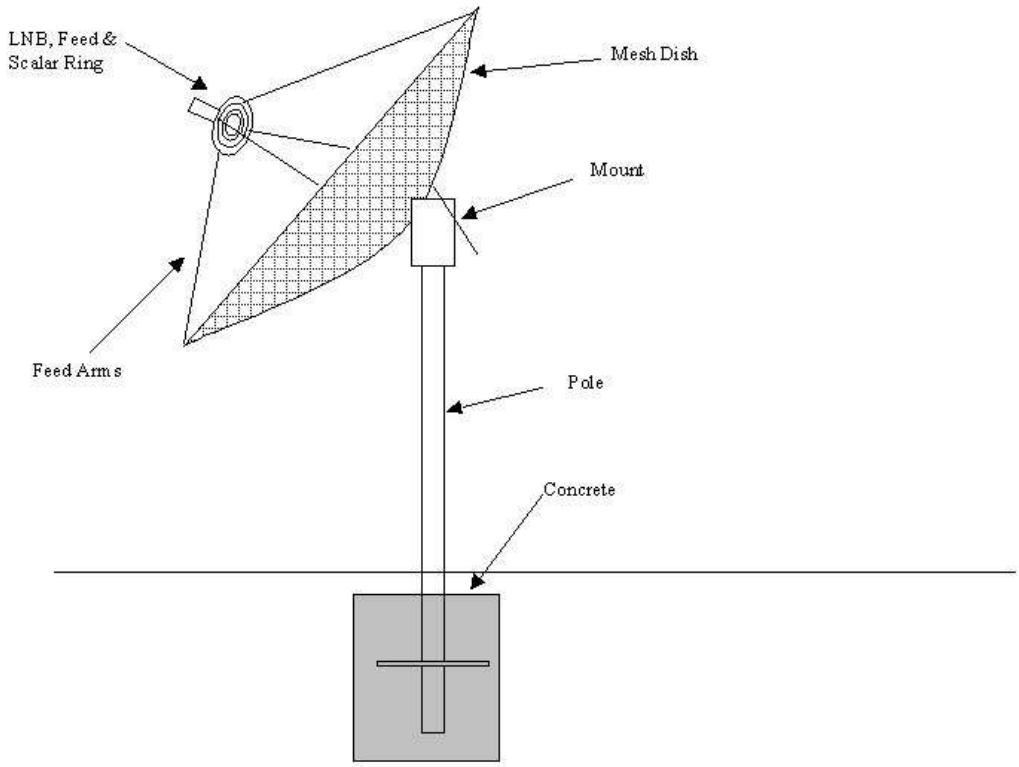
- Spanners, screw drivers, brackets
- Electric Drill
- RG-6 coax cutters & Crimp tools
- Hand held satellite finder (This is a signal level meter for locating the satellite signal)
- Angle Meter (As used by builders to indicate angle/pitch, get one that has 1 degree divisions)
- Compass

Installation Mode

Depending on your skills you may choose to install the dish and pole as a Ground Mount or as a Roof Mount with the pole anchored against a brick wall side. The mode you choose depends on your skills and risk factors associated with working on a roof.

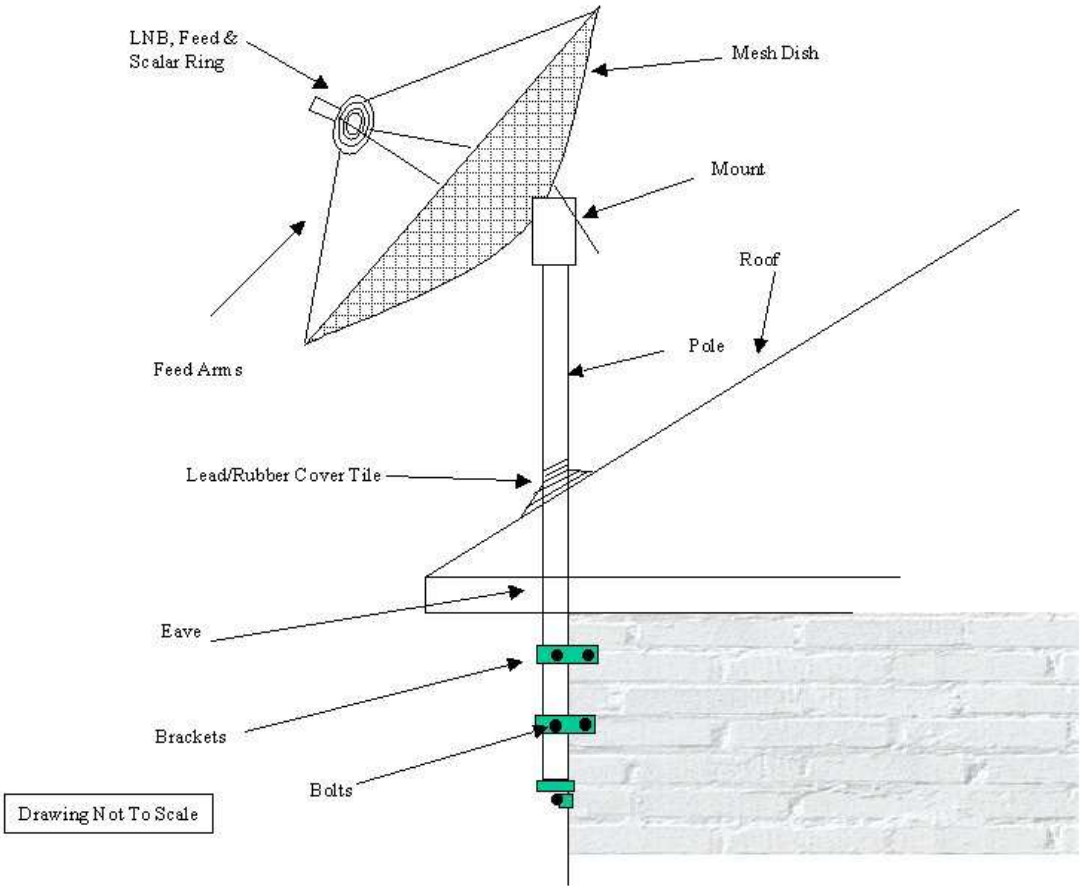
Ground Mount

A ground mount is essentially the installation of the dish in a backyard by installing the pole or post in concrete. You will need to firstly dig a hole of sufficient diameter and depth to allow for wind loading of the dish etc. Insert the pole and ensure it is held in place in a vertical position. The pole must be 100% plumb, check with an accurate spirit level. Pour concrete and allow to set.



Roof Mount

This is probably the most common practice used by most installers and involves placing the pole through the eave and roof tile and anchoring the lower part of the pole to the brick wall using brackets and wall bolts. The roof tile is then replaced with a special lead rubber ring tile so the pole can be fed through it. Ensure the pole is 100% vertical, plumb and secure.



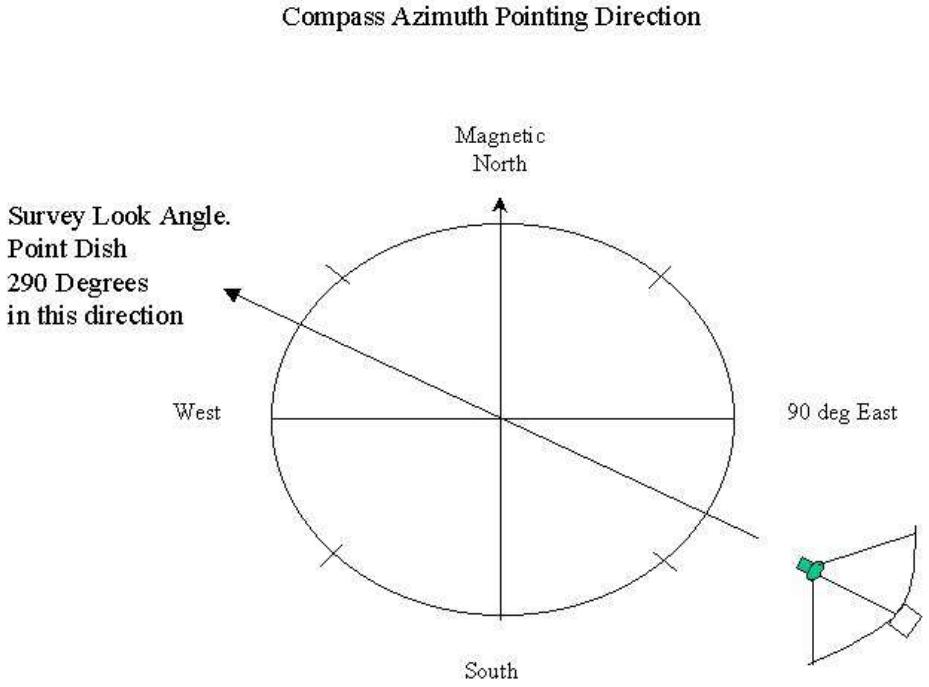
Installation Location & Site Survey

For the reception of RAI, TVE, RTR, Cuba Vision, RTP & LUXE Tv from the ASIASAT2 satellite you need to point the dish in a North-Westerly location for the Sydney area, so the site needs to be clear of obstructions such as trees, buildings etc.

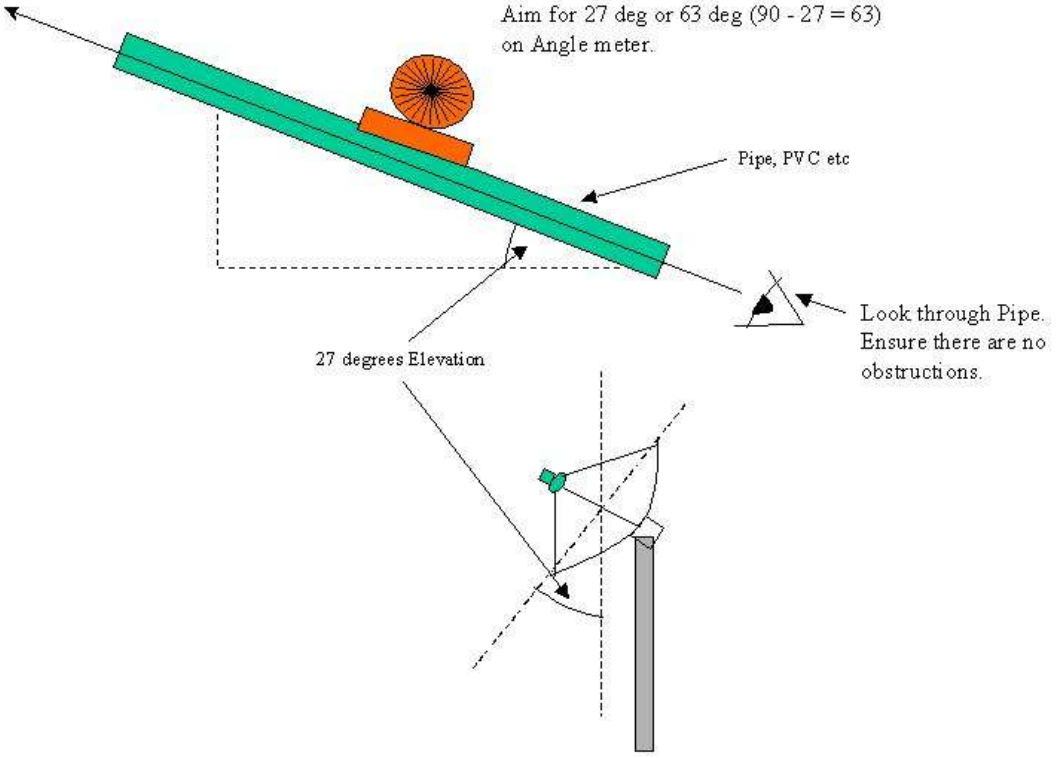
You can verify if the site is suitable by conducting a site survey. For this you will require a length of PVC pipe at 1 to 2 inches in diameter to allow you to look through it, an Angle Meter to measure elevation and a Compass to find the azimuth.

Using the compass locate the North West which is an azimuth angle of ~280 to 300 degrees. Tape the angle Meter to the PVC pipe and adjust the pipe until the angle meter reads an elevation of ~27 degrees. Look through the pipe and hopefully there are no obstructions. If any are found try a different location, and repeat the procedure.

Also the other possible obstruction to your reception will be terrestrial interference from phone towers, radar, microwave links and other radio sources. The problem to your satellite reception will only occur if the interference source is at the same frequency as the satellite channel. ie 4000Mhz. This is difficult to access and find and sometimes you may have to remove the installation if you cannot receive the satellite channels.



Elevation Angle Settings

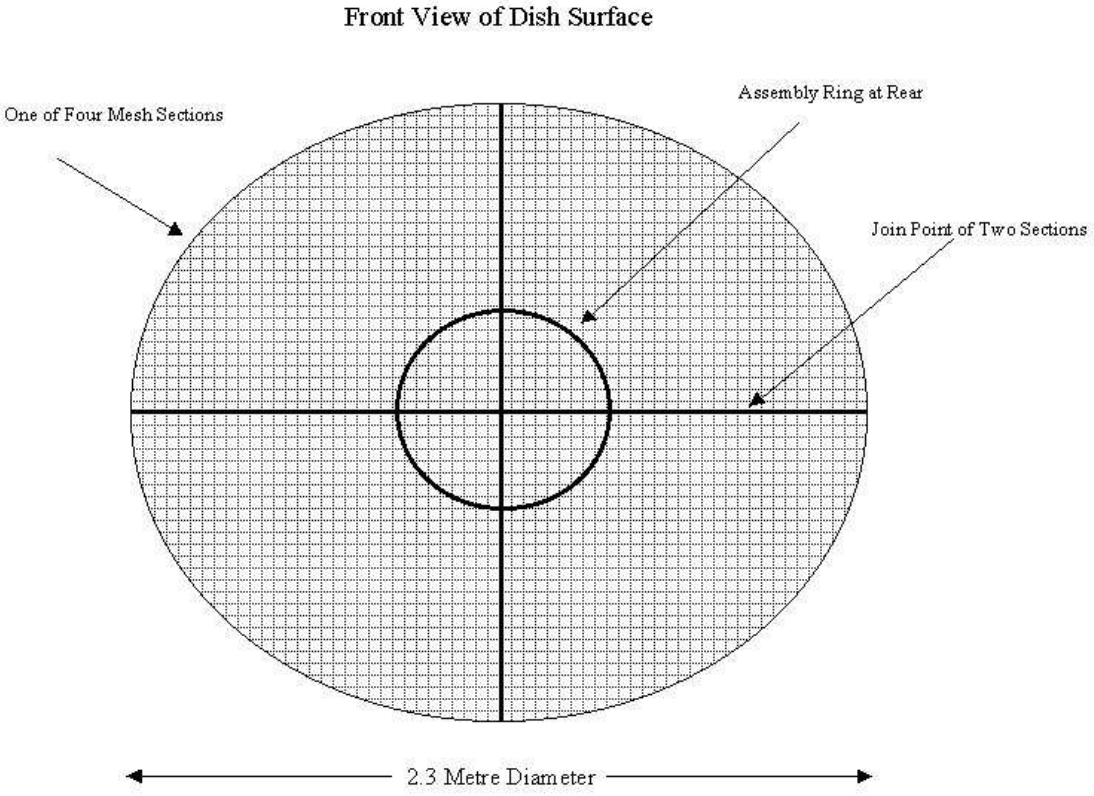


Installing the Dish

When the pole has been installed you may commence to install the mount followed by the dish components. In the case of a ground mount ensure the concrete is dry.

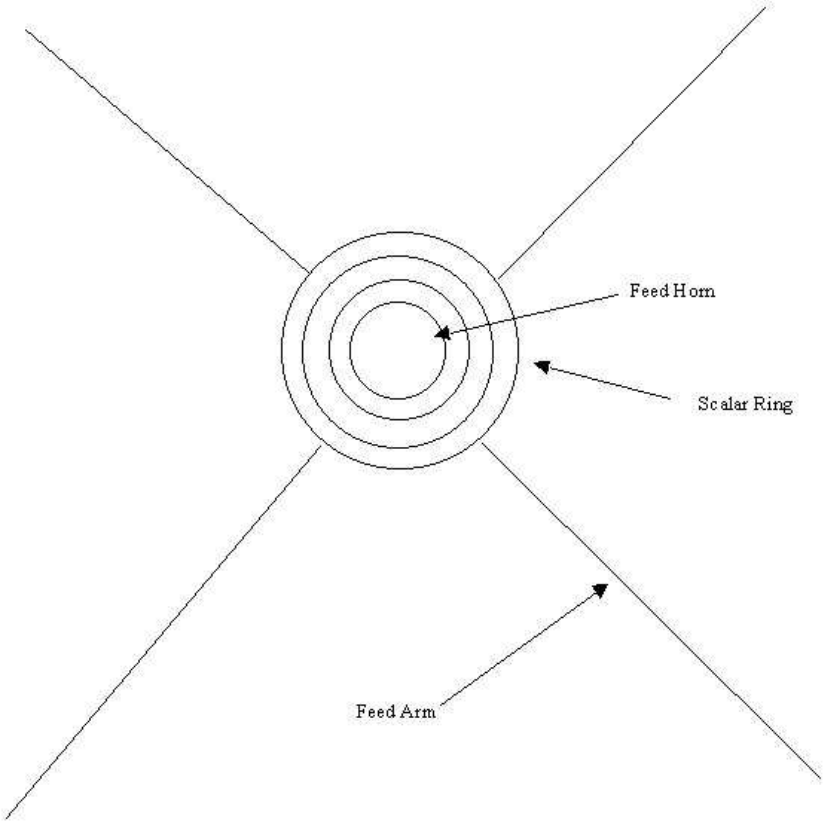
Following the assembly instructions of the dish, install the mount on top of the pole, then commence to install the 4 sections of the dish reflector surface one by one to the mount. Do not tighten any bolts at this stage, but keep them loose, when all 4 sections are installed commence tightening slightly more going around the several times.

When the four sections of the reflector surface are mounted and tightened to the mount you can install the 3 or 4 feed arms that attach to the scalar ring. We need to ensure that the scalar ring is pointing at the centre or focal point of the dish. To do this start by attaching the arms to the dish perimeter at the specified locations, then at the centre of the feed arms, place a bolt through the arms and tighten slightly. Commence tightening the bolts at the perimeter of the dish that support the arms. You can now release the bolt at the centre of the arms.



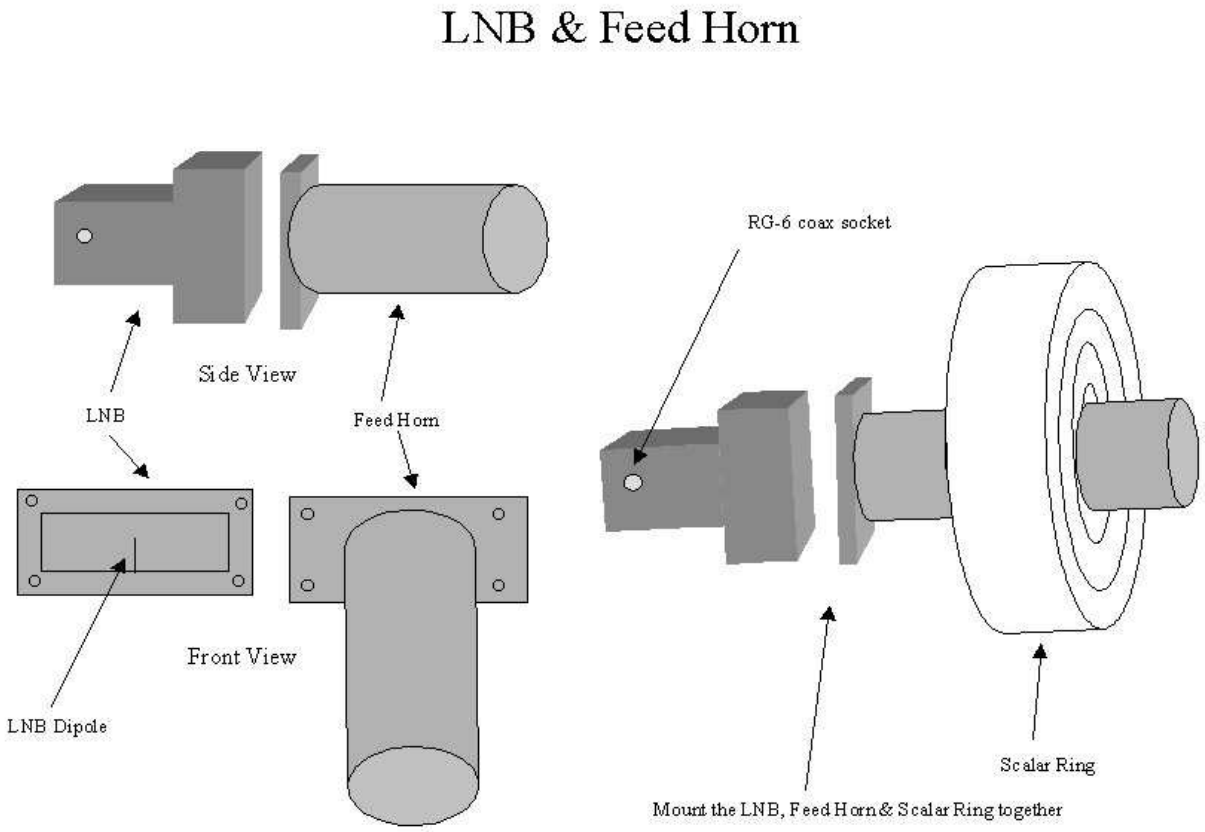
Install the Scalar Ring

The Scalar ring is mounted so that the circular tracks are pointed towards the Dish surface. The ends of the 3 or 4 feed arms at the centre of the dish are mounted to the back (flat surface) of the Scalar Ring. Commence tightening the short bolts to the Scalar ring surface, ensure you do not force or move the arms too much as this will upset the previously centered alignment.



Install the LNB & Feed Horn

The LNB is essentially a high gain amplifier that collects the tiny signals gathered and concentrated by the dish surface. Connect the LNB to the Feed Horn via a rubber gasket if provided, using nuts and bolts. Then pass the Feed Horn through the centre of the scalar ring, so that the Feed Horn is pointed to the Dish surface.



LNB Orientation & Focus

The LNB has a dipole inside it so it can pickup signals, therefore you will have to turn the LNB so that signal from the satellite is in the same polarity or plane. The signal from Asiasat2 for the European Channels is transmitted from the Satellite transponder in a Horizontal plane, so we have to orientate the LNB (Low Noise Block) so it can see the signal in the same plane.

To do this face north with the tips of your fingers holding a short piece of dowel or a stick so that it is horizontal i.e. zero degrees. Now as you begin slowly turning towards the west, tilt the left end of the stick slightly down and the right hand side of the stick slightly up, then by the time you get to North-West eg 290 Degrees you should have some tilt on the stick that represents the Horizontal plane of the signal from AsiaSat2. You can now orientate the LNB so that the dipole is also placed in a similar angle as was achieved earlier with the dowel or stick.

Your dish instructions should include information about Focal Length & FD Ratio. Use this information to make the following settings on your LNB and Scalar ring.

The Focal Length is measured from the centre of the dish to the Feedhorn opening and the FD Ratio is usually marked on the outside of a good quality Feedhorn Scalar Ring combination. Set the FD Ratio on the as specified for your dish and re-check the focal length.

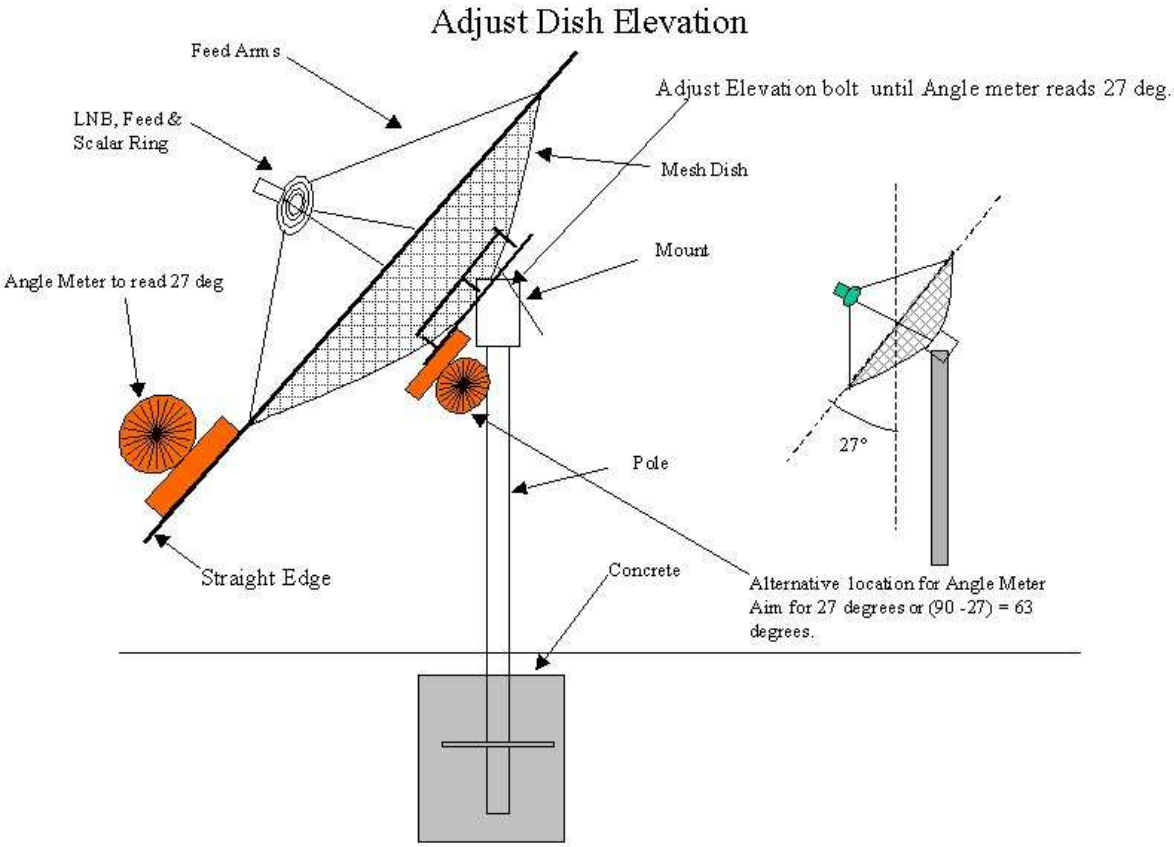
Finding the Satellite Using The Receiver

To find AsiaSat2, so you can start receiving say RAI International and the other European stations, we must first align the dish so that it is pointing at AsiaSat 2. The information here is only applicable to areas around say Sydney.

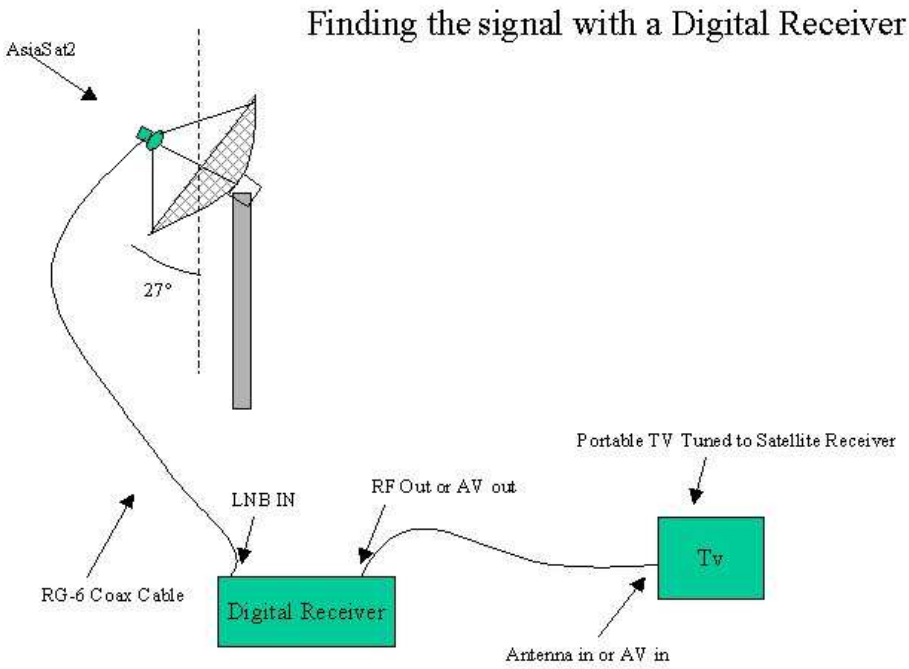
First you need to connect the Satellite Receiver to the LNB using RG-6 connectors and RG-6 cable. Make the cable long enough to reach the receiver while you are trying to find the satellite. Connect the receiver to a television and tune in so that the receiver menu is visible. Set up the receiver so that the Transponder frequency is 4000Mhz, the Symbol Rate is 28125MegaSymbols and FEC to AUTO, and polarity should be set to H for horizontal.

Set the menu on the receiver so that you can view the signal strength meter on the TV screen.

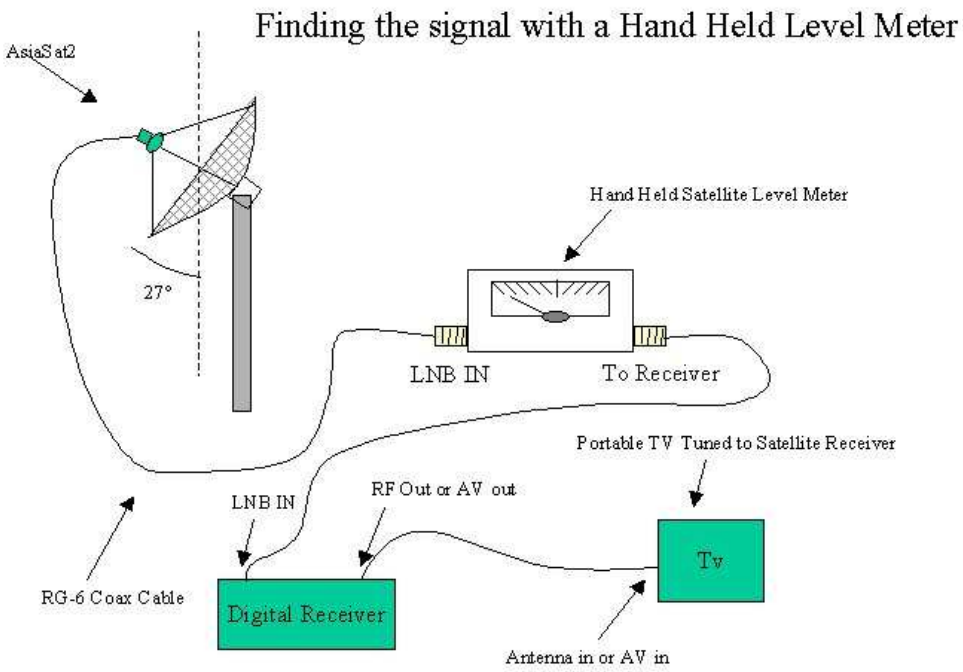
On the dish place the Angle meter at the back of the dish or the front using a straight edge. We need to set the angle to ~27 degrees. If the dish is pointing straight out in front we could call this 0 degrees. If it is pointing straight up this is 90 degrees. So now start adjusting the elevation bolt and nuts to achieve a 27 degree elevation angle.



Once the elevation angle is set, you can start rotating the dish on the pole to achieve an azimuth angle of ~ 290 degrees that is North-West on the compass. If you make these adjustments slowly between Elevation and Azimuth you should get a raise of signal level on the satellite receiver. You should also adjust the LNBF focal point and LNB rotation to increase the signal level and hopefully a signal lock and then reception of the European stations.



You may have difficulty finding the signal using the digital satellite receiver because being a digital signal it may take time for the receiver to recognise and process the signal and thus not display the signal level in time for you to stop making any further adjustments. The alternative approach is to use a Hand Held Satellite Finder or Sat Finder. These are inexpensive broadband meters that will easily indicate the presence of signal. Connect one end of the Hand Held to the LNB via RG-6 coax and the other end to the satellite receiver. The receiver in this case is providing the power for both the LNB and the Hand Held Satellite finder. Repeat the steps above for Elevation, Azimuth and LNBF focus and orientation until you get the best signal strength possible.



Once you have the best signal, check that you can receive the satellite stations via the satellite receiver.
Connecting up the Satellite Receiver in the Home
Run and connect the coax cable from the Dish's LNB to your preferred location of your satellite receiver. If you have other TV's in the house and you want to receive the satellite channels, you will need to feed the RF output out of the Receiver up to the roof where you will need to use a splitter to combine the RF signal and the TV Antenna signal.