

How to do a Signal Survey

Use a simple unamplified antenna that you know the characteristics of very well and how they compare to other antenna types and models to conduct the survey. This will mean that you can use the data you gain from the simple antenna which can be moved around easily and stored easily, to choose the final antenna setup. You should have an idea of the antenna gain and the acceptance angle both vertical and horizontal.

Know where the transmitter is and check out the terrain if you do not know it before going. Looking for likely ridges or multipath situations and any observable obstructions with in the signal path and including elevation and distance to transmitter.

Use a suitable adjustable height mast and walk a line roughly perpendicular to the location of the transmitter looking for a signal. Note any you find and the amount for the various signals you are trying to receive. If none found select a second line to walk. Once a carrier is found along a line walk forward and see if it improves or diminishes. Try walking back until a better location is found. You may begin to get an idea where the signal is and if it is different for different channels at different locations. Once you have found the best line you can asses for height effects on the different frequencies. You need to check a few areas where you picked up signal for height effects to get the best overall signal. When checking height raise the antenna to the best signal reading and then go up again until you have the next height at which the signals match. You can use these two locations to stack the antennas.

Then check slightly to the side of the location for different channels to see if it is different for different channels in a horizontal plane or a vertical plane. Which is the most stable.

You can now setup and try a stack with the best location if it is more stable horizontally then do a horizontal stack or if the vertical is more stable then do a vertical stack.

If you have a vertical multipath situation then a vertical stack would be best etc. You will have to stack the antennas and then fix one at the best location and then move the second one until you get a 3 db gain on the meter at the weakest frequency.

Check and record all signal readings BER readings, Carrier shape and particularly Sync pulse for cleanness of shape especially where mutipath problems are suspect, etc and note all readings.