
D E E P E R I M A G E T E C H N I C A L B U L L E T I N

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SIGNAL TESTING

Signal testing is about identifying exact positions where quality signals on one or a number of channels are available.

The more channels you want to receive from a single located antenna, the more precise and demanding the testing becomes.

Imagine five signals leaving Dandenong in different geographical positions and arriving at a single antenna at slightly different angles. If you could do that you could see that the antenna would have to be a contortionist to receive the signals on its elements at the exact same receiving position.

When testing in ghosting or weak signal locations this difference in receiving angle means that one channel will be able to be viewed well while another is of poor quality.

So one way to handle this is to sell the customer more than one antenna. Your testing can identify the best position for the antennas to be mounted.

Situations which experience multi-pathing(forward direction ghosting) and ghosting are not possible to be solved with a single antenna. The best you'll do is a compromise unless multiple antennas are used in this situation.

The approach is to select an antenna for the desired channel which has no gain and a known back to front ratio on the channel being tested.

This would be the ideal scene. However, in practice, what we do is use an antenna that is known to work in locations with similar signal characteristics and test in various locations taking very careful notes of the differences between channels at various locations.

Often this will mean using an antenna designed for a band of channels such as 7,9 and 10, UHF and channels 0,1 and 2.

In a particularly poor location you would use a series of antennas to cover the various bands of frequencies.

Generally VHF signals are improved with a combination of position and height. However UHF signals are influenced far more by positions. Height as a means of improvement has very little merit.

The other interesting thing to know about these various bands of channels (frequencies) is that the lower the frequency the more signal you need to produce a quality picture and the higher the frequency the lesser amount of signal you need, for example:

- Channel 2 without an amplifier would require approx. 48 db microvolts before amplification to provide a quality image.
- Channel 10 would be approx 40 db microvolts.
- Channel 28 on Visionleader can produce a quality image on approx. 26 db microvolts.
- Even a UHF Yaggi could provide a quality image on approx. 34 db microvolts.

If signal testing is part of your job it would be essential for you to study materials on signal propagation so that you know how a wave or a channel actually travels through space and what effects obstacles create on the wave or channel.

To really be a professional you would also need to study antennas. The strength and weaknesses of various antennas for example: Yaggis, Colinears, Log-periodics, Phased arrays, Corner Reflectors and Phased cancellation devices.

So a technician qualified to site test would know how waves travel, how antennas work. He would have experience in a wide range of geographical locations which demonstrate the different types of signal conditions. He would have the intention, the persistence and the stamina to find a solution in the toughest circumstances.

Quality signal testing is very demanding and requires a very professional approach.

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