
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

12th April, 1995.

SUBJECT: OUTLETS- HOW MANY CAN YOU RUN OFF ONE ANTENNA?

The answer is as many as you like provided a couple of basic rules are followed. Signal is energy and as the energy is exposed to devices whether they be cable, outlets, connections, splitters or the like the energy is dissipated. The devices the signal is exposed to are all resistive and as such they reduce the energy level.

So when running a number of outlets of a single antenna installation it is important to establish the level of signal (energy) this should not be less than 60dbuv. In an environment which has a lot of inference floating around I would suggest a level of 66dbuv would be better. Now at this point if you do not know what a DBUV is then go away and define the symbol before reading on.

Typically around Melbourne your average suburban antenna would pick up

Channel 2	68dbuv
Channel 7	67dbuv
Channel 9	66dbuv
Channel 10	64dbuv
Channel 28	56dbuv

As you can see from this example a number of channels are below the desired level of signal. At these levels TV sets will still perform quite well but even so they are still more prone to interference and problems than a TV set that is enjoying higher levels of signal.

This antenna in my example belongs to Mr. & Mrs. Jones. They have requested 2 additional outlets.

What is going to happen to the signal?

The two outlets are positioned 17 and 12 metres respectively from the antenna cable which passes through the roof.

We will chop the antenna cable and insert a 3 way splitter. Signal loss on channel 28 in adding this device in the line approximately 7db. You need to look at individual manufacturers specifications to gain the exact insertion loss for any given frequency. When calculating you always use the highest loss on the channels or frequencies wanted.

Length of cable 17 metres	Signal loss on channel 28	3dbuv
Outlets and fly lead	say 1.5 db	

Therefore the total loss on this system at channel 28 is 11.5db. Take this away from the original 57dbuv and we get 45.5dbuv. Not much particularly if they have a large 68cm TV set, which is just hungry for signal.

In a situation like this you would push for a small amplifier to be installed to improve the linear levels of the channels and cover the distribution loss of installing the 2 additional points.

So the rules are:

Estimate or know the off air signal levels.

Calculate the cable loss on the highest channel being received.

Calculate the insertion loss from the device being installed into the cable line

Add an extra 1.5 to 2 db for outlet and fly lead.

Take the signal received and deduct the calculated loss

Evaluate whether there is enough signal to satisfy the sets need to deliver quality images

Sally Garden

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