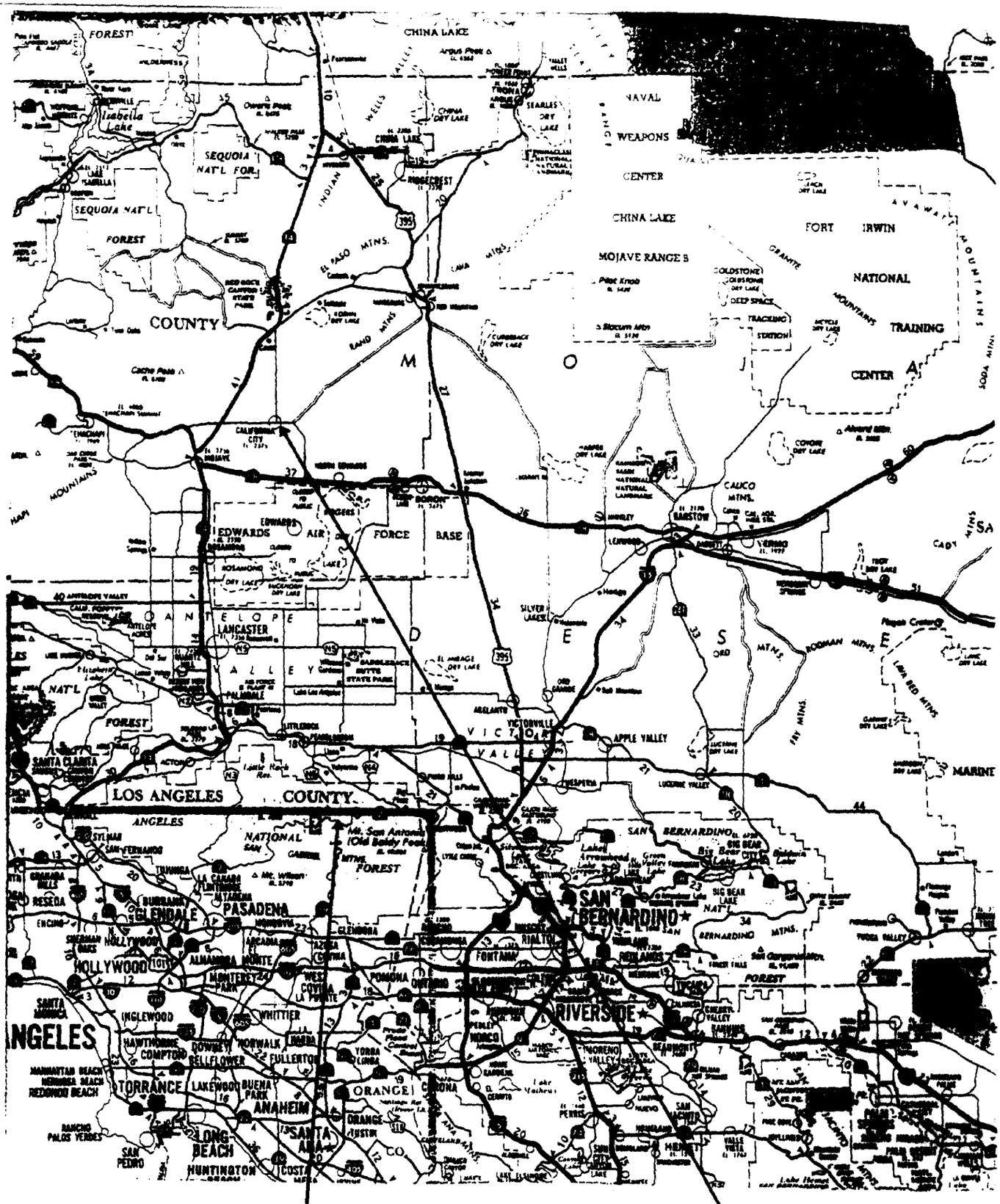
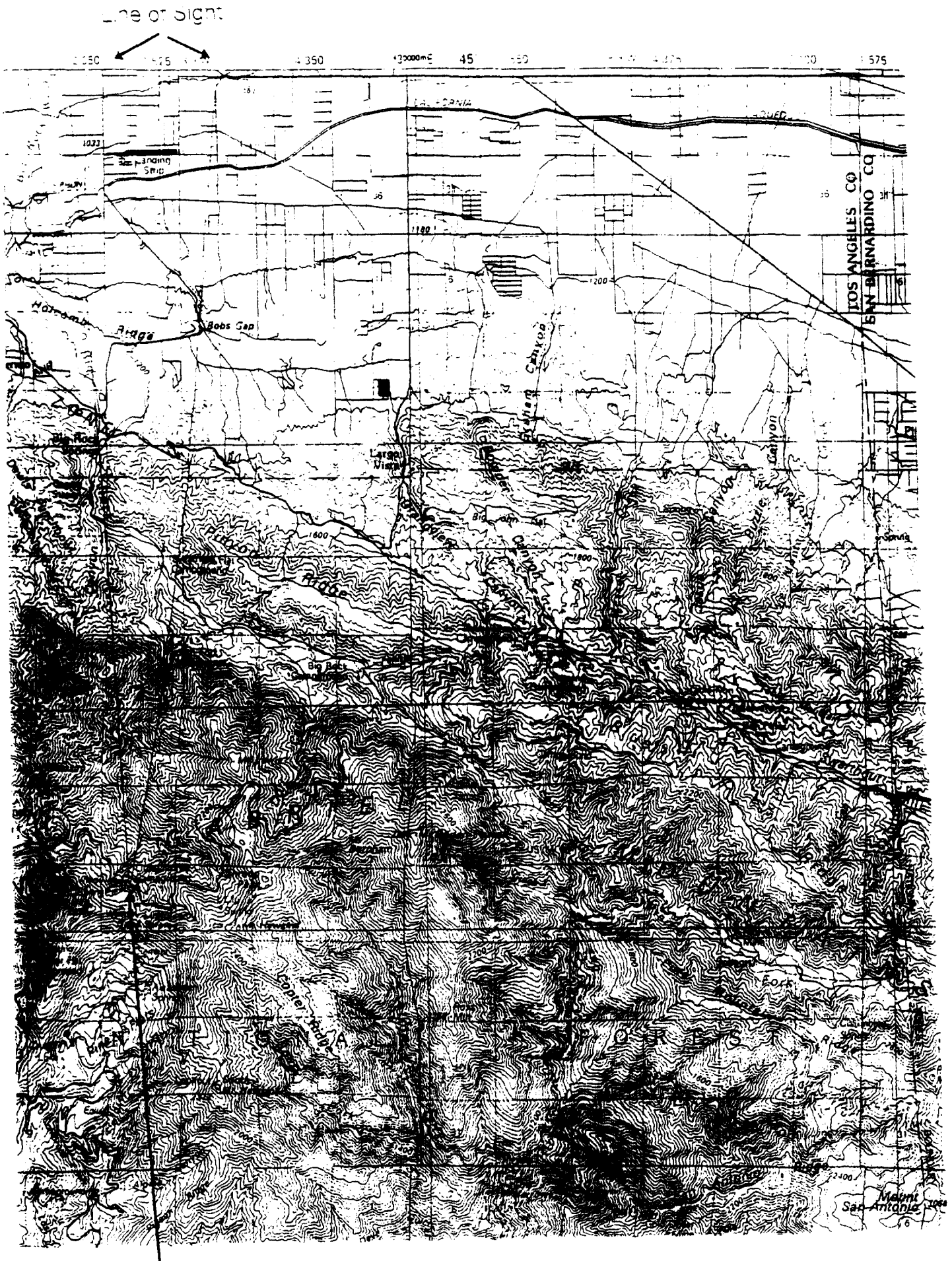


Approximate Accident Location

Approximate Cell Site Location


Line of Sight
Bobs Gap
Large Vista
Big Rock
Copter Ridge
Mount San Antonio
LOS ANGELES CO
SAN BERNARDINO CO
Approximate Accident Location

6

Antenna pattern used by cellular systems in the Antelope Valley

Antenna pattern which would have probably provided coverage from nearby cellular carrier to the accident location

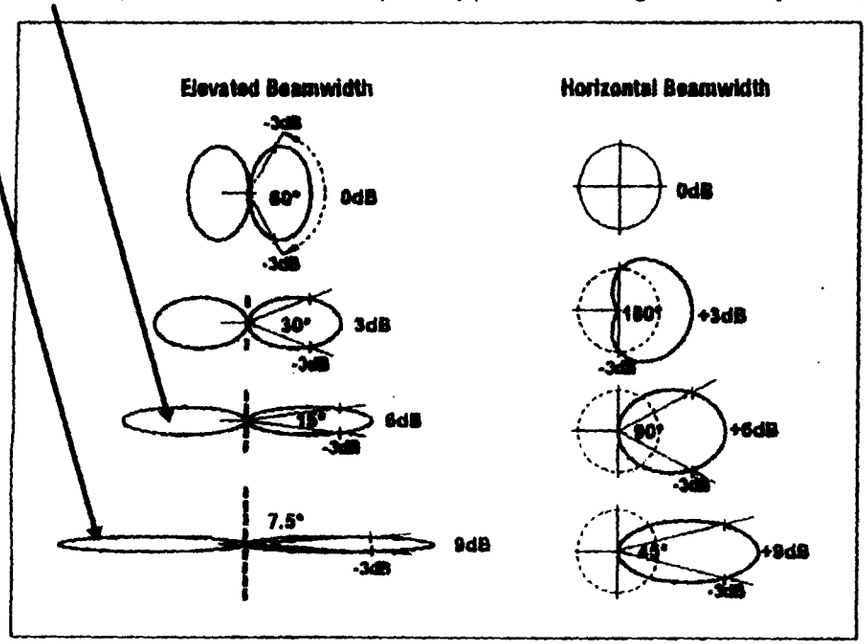


Figure 1. Principles of Antenna Gain.

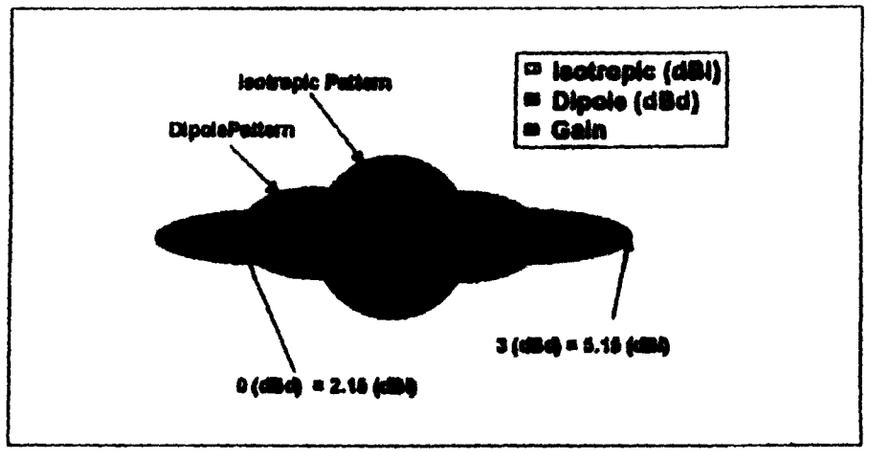
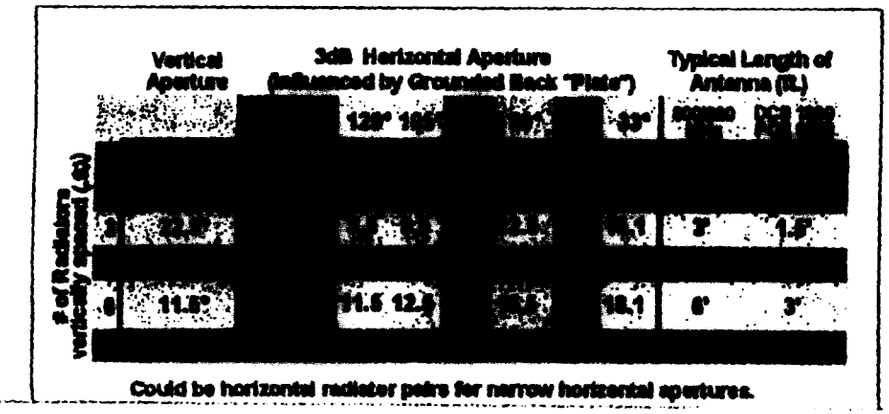
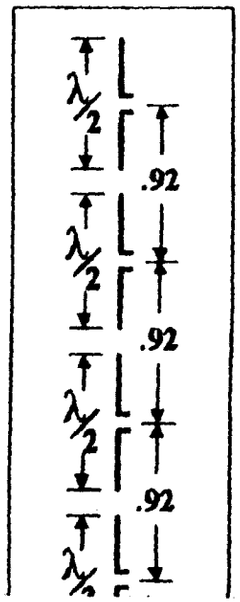


Figure 2. Gain References (dBd and dBi).





gain of the antenna will be slightly lower than theoretical due to losses within the antenna. It should also be noted that as the number of elements becomes very high the increase in gain for added elements becomes less prevalent. The increase in number of elements results in higher losses in the feed network.

monly not specified on data sheets or in antenna catalogs. Upper sidelobe suppression is typically defined as a reduction of energy in the first lobe above the main beam. This is used to reduce co-channel interference with nearby sites. Null fill is defined as a reduction in depth in the first null below the main beam. The combination of upper sidelobe suppression and null fill directs more of the radiated energy from the antenna below the main beam toward the user.

Incorporating upper sidelobe suppression and null fill does not come without its trade-offs. Typically the gain of the main beam gain will decrease by approximately 1 dB when the antenna is optimized with upper sidelobe suppression and null fill. Even with this dB of loss, the benefits typically outweigh the loss in gain.

When choosing an antenna it is impor-