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Overcoming Engineering Obstacles in Phoenix

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South Mountain, one of the most heavily restricted transmitter sites in the country, lies within a city park outside of Phoenix. The rules are simple, replacement towers only. If you want to put up a new one take down an old one! Also no new antennas may be higher than the highest antenna presently on the mountain.

When I came here to KTVK in 1982, we had two RCA super turnstile antennas; the main, mounted on a 125 foot tower, and the auxiliary with its bury section in a concrete pad at the ground level.

A coverage survey conducted by a local firm confirmed that KTVK's coverage, especially with rabbit ear reception, was the poorest of all valley stations.

After considerable research, I concluded that the Jampro Spiral was the best possible antenna for our situation. Removal of the pad mounted super turnstile allowed us to build a 230 foot tower next to the 125 tower. The Jampro Spiral found its home at the top. Jampro also supplied the new diplexer and the single 6 and one-eight inch transmission line. The super turnstile became the auxiliary antenna.



In 1995 we entered into an LMA agreement with local channel 61. The new station had to be built from the ground up. We felt that the channel 3 transmitter site was the only viable location for the new UHF transmitter. Again a tower had to come down; this time it was the 125' auxiliary and the

super turnstile. The decision was made early on to put the top of the new UHF antenna at exactly the height of the channel 3 spiral.

The channel 3 spiral antenna has operated flawlessly since its installation in 1986; KTVK is the leading independent station in the country. Jampro did scalloping studies for us to determine what impact the new tower and antenna would have upon the existing channel 3 signal. It was determined that while some scalloping of the channel 3 pattern would occur, the impact would be minor.

Because of our comfort level with Jampro and its products, we felt it only natural for Jampro to supply our engineering and UHF transmission equipment for the new channel 61

Another important factor was to adjust the polarization to afford good reception to TV sets operating with indoor antennas. Elliptical polarization was utilized by adding 15% of the transmitter power to the vertical polarization. A top mounted Jampro traveling wave slot antenna met all of these criteria. Jampro was commissioned to supply everything from the waveguide switch to the top of the tower, including the WR1150 waveguide. Jampro designed waveguide hangars, matching sections and antenna. At the same time, Jampro supplied a 12 bay one-half lambda FM antenna and a new channel 3 panel array. The panel array was used to allow riggers to work in the aperture to the channel 3 spiral during construction. It will also be used during the simulcast period of DTV.

Channel 61 is not the most desirable UHF channel; cheap splitters and coaxial cable used in many homes are terribly lousy at channel 61's frequency. Nevertheless, the Jampro traveling wave antenna with virtually zero reflected power is performing beyond our expectations.

As we look into the future with Digital Television, we will face even more challenges. But given my experience and satisfaction with Jampro, I know I will not have far to look.