



BROADCAST WORKS!

2105 Anthony Drive
Tyler, TX 75701
T (903) 509-2470
F (903) 509-0880
wesley@broadcastworks.com

www.broadcastworks.com

KRTP NAUTEL TRANSMITTER LOW POWER ISSUE

The KRTP transmitter is licensed for 930 watts. When I arrived in Alpine the forward power was at approximately 270 watts with 25-29 watts of reflected power. This power level had been programmed and was intentionally set. I'm sure it was to prevent damage to the transmitter. That said, I brought the power up (attempting 900 watts) but, the unit would only make about 340 watts.

As this trip was for both KRTP and KALP, I began looking KALP over and discovered that whoever made the connections for KALP's transmitter did a very poor job. The connections were sharply bent and crimped in places as in the photo to the right. This causes a change in the electrical properties of the transmission line and directly affects the transmitters output. Bearing in mind that I'm currently talking about KALP, we re-terminated all of the bad connections and got KALP stabilized. Their reflected power seemed to come down some.



Both stations transmitters pass through a set of bandpass filters to prevent them (or at least mitigate) from interfering with each other as they are only 1Mhz apart. I began tightening all of the connections involved with the filter for KRTP and noticed the reflected power went down some. At that point I decided to disassemble the connector for the KRTP 7/8" transmission line. The connector was improperly terminated and half of it was bent inward. Again, this adversely affects the electrical properties and I made corrections



and re-assembled the connector.

At this point, with KALP at full power, I was able to bring KRTP up to 600 watts forward power yet, the reflected power remained high at approximately 30-40 watts.



Nonetheless it remained stable at 600 watts.

Throughout the trip I discovered that KALP's transmitter was going to need to be sent in for some repairs and took the opportunity to do some further testing. I suspect that, as all of the other heliax (the cable type in use [not the brand]) connections had been improperly terminated, the 7/8" cable connection at the antenna or the antenna itself has been improperly installed. Since KALP and KRTP are so close in frequency I decided to send KRTP's transmitter through KALP's antenna. When I did that the transmitter came up to 923 watts forward power and only 1 watt of reflected power.

In my opinion, that is proof that the problem is in fact either the connections at the antenna or the antenna might have been installed upside down. There are weep holes on those antennae and if installed upside down then they would collect water as opposed to disposing of condensation.

I recommend that we get a tower climber and re-terminate the 7/8" transmission line and verify the antenna is properly installed. We also need to bring all of the proper test gear which we have in our shop. We have equipment that will allow us to survey the whole signal path without the transmitter.

The fact that I was able to get 923 watts with only 1 watt reflected is demonstrative that the transmitter is not the problem but, rather the problem lies within the line and or antenna.