

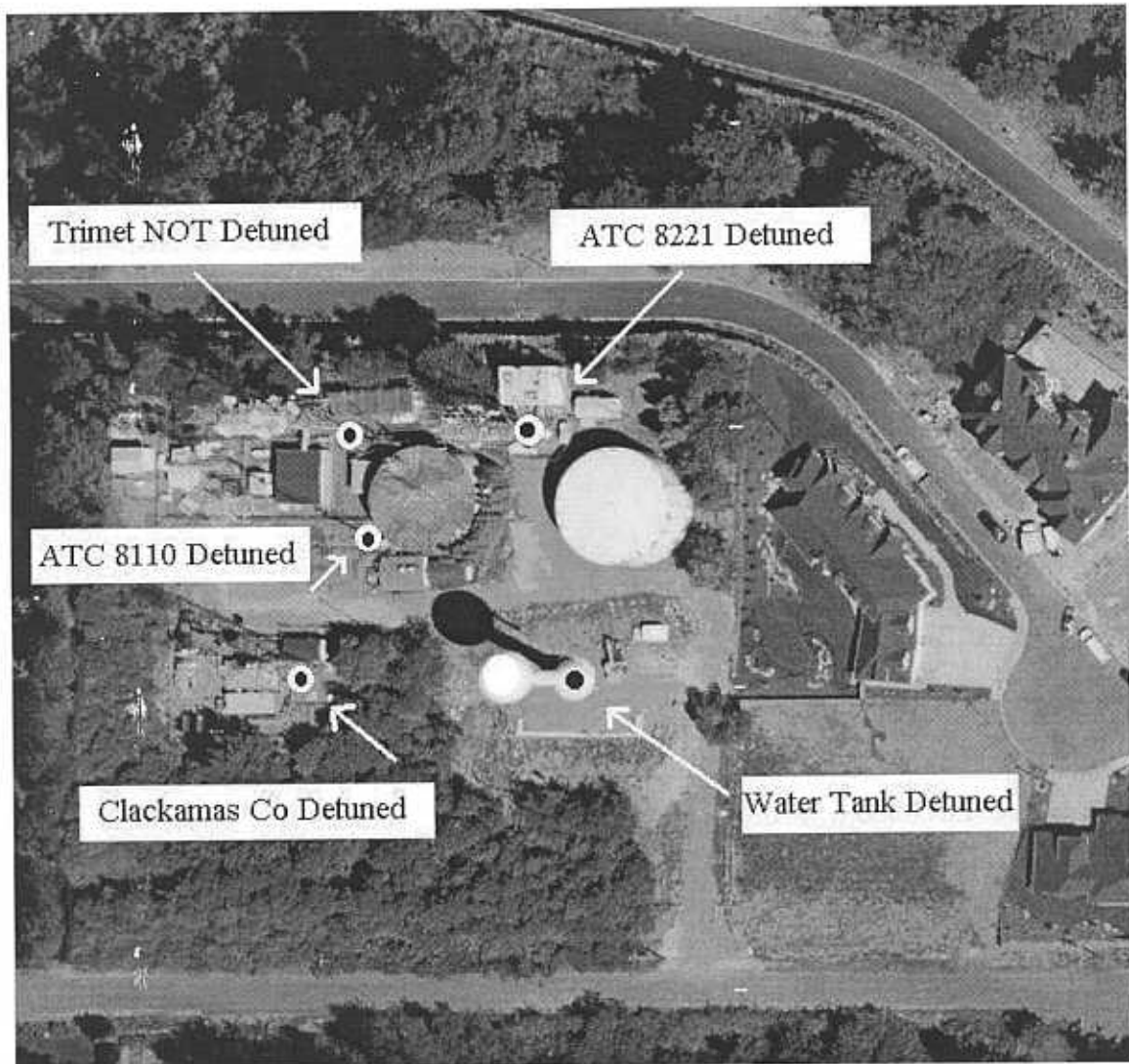
Detune of ATC towers

Mt. Scott 10/2/2009

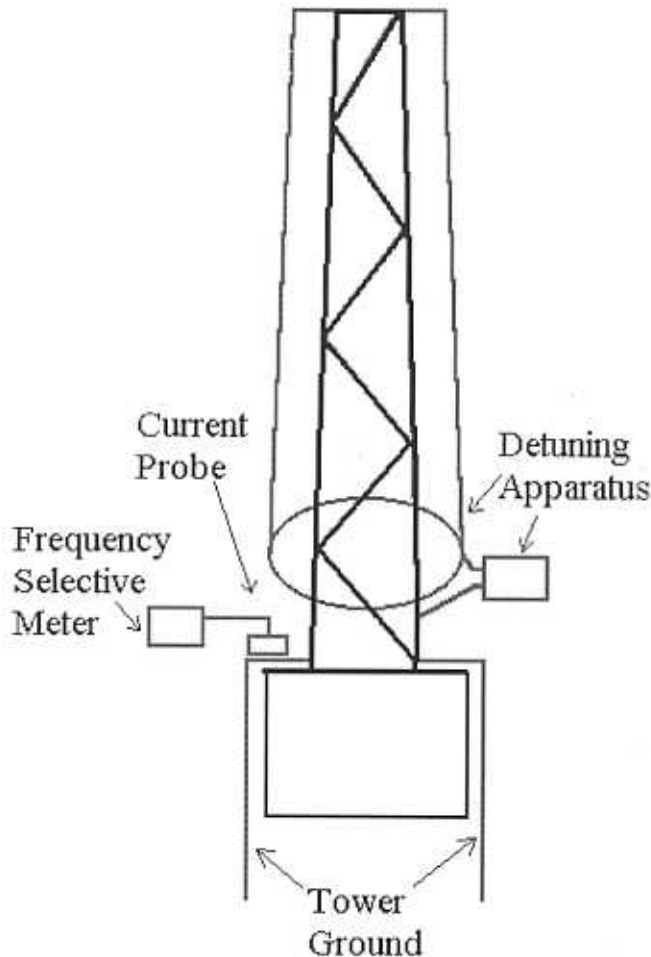
These are the results of the ATC Co Tower detuning adjustments check.

The tower is located at a bearing of 295 degrees at a distance of approximately 880 feet from KKPZ and KDZR. The tower is detuned and one of several tall towers that are closely spaced at that location.

Both KKPZ and KDZR experienced significant distortion to its pattern due to the towers at this location. Altogether there are 4 tall towers and an elevated water tank at this location. Three of these towers owned by American Tower Company and Clackamas County are detuned as is the elevated water tank and no longer pose a problem. The fourth tower operated by Tri-Met is not detuned. The layout of the towers at the tower farm is shown below.



Due to the close spacing of the other towers, and the un-detuned Tri Met tower the towers at this location cannot be detuned in the usual way using a Field Intensity Meter. Adjustments of the American tower detuning can only be done by monitoring RF currents in the tower.



Due to the number of close and tall communication towers, 7 overall, field measurements for the impact of any one tower is difficult. Should any other tower change between the before and after measurements the cause of any changes is indeterminate.

In this case a copper theft at another nearby tower damaged the tower grounding. That damage has since been repaired and that tower detuning has been readjusted.

The impact of that damage upon the pre and post measurements for the work done at ATC 8110 is unknown.

On 4/10/2009 I readjusted the detuning on the ATC8110 towers and checked the towers on 10/1/09 using the following method.

A current probe was placed to monitor the RF current to ground from the tower. One of the grounding conductors at the base of the tower were used for this purpose.

The current probe used is a custom built shielded loop which is sensitive to the current in the tower ground conductor.

Monitoring of the RF current was done using a FIM as a frequency selective relative current meter.

Monitoring for minimum current to ground provides a close approximation of the proper detuning adjustment. Once the tower ground current indicator was in place I adjusted for minimum current at 1,330 and 1,640 KHz.

John White, CBRE
Chief Engineer
KKPZ/KDZR