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### Coexistence Analysis:

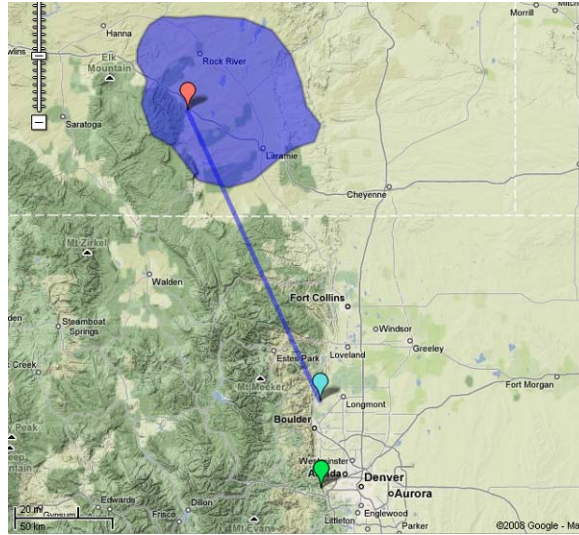
This document is intended to facilitate a quick turn around of the STA application. It includes analysis based on the FCC ULS and CDBS databases. It is not intended to replace the FCC OET analysis.

The experiments will take place at the NTIA Table Mountain Radio Quiet Zone near Boulder Colorado operating under a Cooperative Research And Development Agreement (CRADA). The facility and area of operation are shown in Figure 1.



**Figure 1: Experimental License operation area at Table Mountain.**

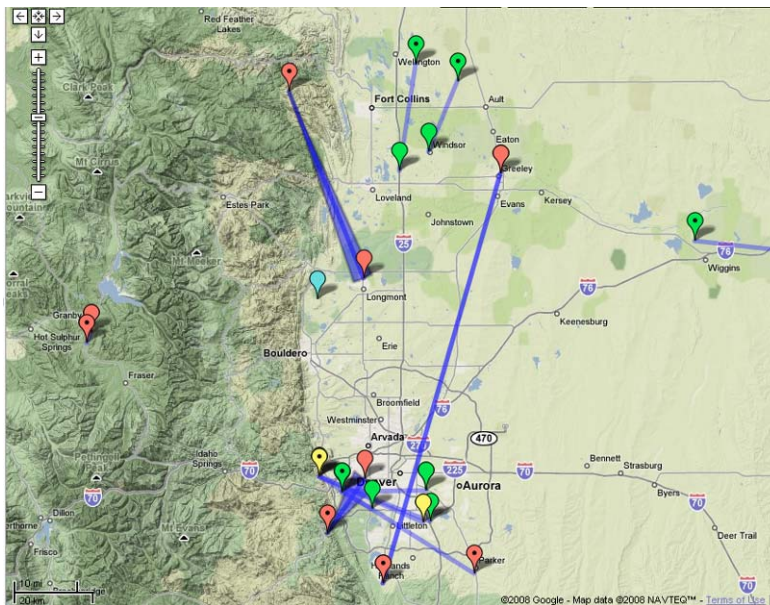
The 106.5 MHz transmitter operates within the FM broadcast band. The nearest co-channel transmitter, KLMI-FM, is 100miles away as shown in Figure 2. The service contour and experimental transmitter are separated by a large mountain range. Because of the distance and intervening terrain, KLMI should observe no effect on coverage. The experimental transmitter is narrowband and low-power. It should have insignificant effect on adjacent channel (106.7 MHz and 106.3 MHz) FM transmitters in the area. Only one, KBPI FM at 106.7 MHz has a service contour that includes Table Mountain. Other adjacent channel transmitters in the area are low-power with service contours at least 8 km from Table Mountain.



**Figure 2: Nearest co-channel transmitter (red) and adjacent channel transmitter (green) to experimental 106.5 MHz transmitter (blue).**

The 903.4 MHz transmitter operates within the 902-928MHz ISM band. While some narrowband location services (LN) use this band in Colorado, none are in the vicinity of Table Mountain.

The 948.4 MHz transmitter operates in a band used for Aural Intercity (AI), Aural Studio (AS), and Multiple Address Service (MS). If we consider all of these services within the band 948-949 MHz and within 100 km of Table Mountain we observe the AS links shown in Figure 3. No AI or MS links satisfy these criteria.



**Figure 3: All transmitters in the band 948-949 MHz within 100km of Table Mountain (blue). Red indicate transmitters with center frequency within the 948.2-948.6 Mhz band of the Experimental Transmitter. Yellow indicates other transmitters that intersect with the band. Green indicates transmitters outside this band. The dotted marker indicates the receiver.**

The closest co-channel (red) link is WPZY701, the AS link for KXWA-FM (to the North of Table Mountain). Several factors mitigate this proximity. First, the Experimental transmitter's power is 31.5 dB lower. Second, the Experimental transmitter will operate at 2m above the surface compared to 18.0m for WPZY701. Third, WPZY701 uses a very high gain receive antenna with beamwidth 6.6 degrees as shown in Figure 3. Table Mountain is well outside this beam width. Finally, Table Mountain does not have a line of site to the receiver due to tall mountains (e.g. Blue Mountain) to the Southwest of the WPZY701 link path.

Other AS links have receivers that point away from Table Mountain or are not co-channel (i.e. they are green).

The analysis described here was used to choose frequencies that we believe to be able to coexist with existing transmitters. If this is not the case, we would welcome suggestions for other frequencies in these bands.

Note that the figures were generated with Google Maps. Each of the icons contains data on the transmitter/receiver. The FCC is welcome to examine them directly at:  
<http://maps.google.com/maps/ms?ie=UTF8&hl=en&msa=0&msid=107471668570808933382.00044f948cdd52277929b&ll=40.751418,-104.968872&spn=2.854603,4.685669&t=p&z=8>