

Electromagnetic Field Measurements
KATC Transmitter Site
Cheyenne Mountain
Colorado Springs, Colorado

Citadel Broadcasting Company
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Introduction:

Radio frequency field power measurements were made at the KATC transmitter site atop Cheyenne Mountain to verify the intensity met the FCC guidelines for uncontrolled general population. This is a shared site with hundreds of transmitters operating. The site is a mountaintop and used by FM, TV, two-way, cell and microwave relays. More than 40 towers occupy the forty acres. KATC's site is located in the middle of the complex. No other workers were at the site when these measurements were made giving us a worst-case scenario for having the transmitters at full power.

The Cheyenne Mountain site is located at approximately 9500 feet southwest of Colorado Springs. The road to the site is gated about 3.5 miles from the top. Workers visit the site from many industries on a regular basis and they are not knowledgeable about radio frequency exposure limits. Many improvements to the site such as higher antennas, new antennas with low downward radiation and re-distribution of the radiators have lowered the levels. Site surveys are conducted by both individuals (stations) and Cheyenne Propagation (site owner) when changes are made to re-confirm levels. I did this same measurement 1 year ago for KKMg (in the same building and tower) and found the levels lower now.

Measurement Procedures outlined in OET BULLETIN 65, (EDITION 97-01, [OET 65] "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields", ANSI/IEEE Std C95.3-1991, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave, and NCRP Report No. 119, "A Practical Guide to the Determination of Human Exposure to Radio Fields" were used for the measurements taken at the Cheyenne Mountain site.

Test Equipment Used

A NARDA Model 8718B Electromagnetic Radiation Survey Meter with a NARDA Model B8742D Isotropic Shaped Electric Field Probe was used to make the measurements. The NARDA probe provides an output proportional to CFR 47 p.1.1310 Radiofrequency Exposure Limits (General Public/Uncontrolled Environment) maximum permissible exposure (MPE) over the frequency range from 300 KHz to 3 GHz. The isotropic response of the NARDA B8742D Probe is +/- 0.75 dB.

The NARDA diode probes, such as the Model 8742D, are designed to provide signal detection on a square law basis and yields accurate readings of fields from multiple sources.

NARDA RF Survey Meter 8718 serial number is 1111.

NARDA Isotropic Shaped Frequency Response Electrical Field Probe for General Population Environment 300 KHz – 3 GHz B8742D serial number 11004.

Measured fields

KATC's HD antenna is a single bay ERI at about 65 feet AGL located on a tower with many other users (TV, FM CELL and microwave relays).

23 measurements were made all around the KATC transmitter building and tower. The data is included.

Conclusion

The site around the KATC building and tower complies with the requirements set forth in CFR 47 p.1.1310 Radio Frequency Radiation Exposure Limits with regards to general populations/uncontrolled environment MPE.

Run Ref. Number: 60

Date: 11/27/07

Start Time: 16:09

Model 8718 S/N: 1111

Cal Date: 02/05/07

Due: 02/05/08

Probe: A8742DS/N: 11004

Cal Date: 02/05/07

Due: 02/05/08

Freq: N/A

Cor. Factor: 1.00

Logging Rate: N/A

Avg Mode: N/A

Ref#	Field Strength
001	4.22
002	6.21
003	7.56
004	11.58
005	6.62
006	4.26
007	9.71
008	8.25
009	9.66
010	9.83
011	3.75
012	2.01
013	3.88
014	3.64
015	2.94
016	4.07
017	4.03
018	6.41
019	3.00
020	7.71
021	6.19
022	13.44
023	13.03