

## Appendix 1

### *Canyon Mountain Communication Site (CMCS) Technical Standards*

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Prepared for BLM  
by  
Engineering Design Corporation

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**Appendix 1**  
**CMCS Technical Standards**

**Table of Contents**

<u>Title</u>	<u>Page No.</u>
A. Required Minimum Standards	1
B. Additional Standards	1
C. Site Cleanup and/or Improvements	2

CMCS users shall use following technical specifications, standards, and improvements for existing and new installations to avoid radio interference to other CMCS users, and to limit Maximum Permissible Exposure (MPE) limits for human exposure to radio frequency (RF):

A. Required Minimum Standards:

1. All communications system equipment, including antenna systems and feedline including wires and cables shall be installed and maintained in a good workmanship, neat, clean, and orderly manner for a permanent installation secured firmly in place, electrically and mechanically.
2. Transmission line shall be jacketed heliax type only and shall be secured to transmission tower in accordance to the manufacturer's specifications and installation instructions. Use of unjacketed transmission is not allowed. Insulated tie wraps or insulated clamps shall be used. Wrap lock is not allowed to secure transmission line to the tower.
3. Feedline shall use double shielded, double braided, or heliax coaxial cable. RG-8 cable is not allowed.
4. Radio equipment other than microwave equipment shall be housed on properly grounded metal racks or in cabinets.
5. A copy of current FCC license, name, address, and telephone number of the responsible person for equipment maintenance, receiver frequency, transmit/receive tone frequencies, and transmit power and frequency shall be maintained by each transmitter licensee. Each transmitter shall be identified with a copy of the current FCC license.
6. Antennae shall not be relocated after tests and approved location for mounting. Radios shall be of "Accepted Type" for the approved application.

B. Additional Standards

1. Superconducting and/or adaptive type filters, consisting of low-pass, high-pass, bandpass, and/or band reject (or notch) filters, to discard all unwanted signals, shall be used by a new licensee. Filter design shall be either Butterworth, Tchebysheff (Chebyshev), Cauer, or Bessel type.
2. Transmitters shall have a bandpass cavity to provide following attenuation:
  - a) 30-50 MHz, 20 db attenuation at 500 Khz
  - b) 70-88 MHZ, 10 db attenuation at 1 MHz

c) 130-170 MHz, 10 db attenuation at 350 Khz

d) 400-520 MHz, 5 db attenuation at 1 MHz

e) 600-6000 MHz, 5 db attenuation at 250 Khz

3. Isolator shall be installed between the transmitter and cavity filter of the antenna with a minimum of 40 db attenuation in the opposite direction of the transmitter conducting RF energy in one direction.

4. Ring or Wilkinson type hybrid, and/or cavity combiners and duplexers shall be utilized to combine different discrete frequencies from two, or multiple paths onto one path or for more than one user.

5. Insulated guy wires to bond across clevises, brackets, etc. Loose wires or metal objects on towers are not allowed.

6. Connectors of "N" type is preferred against coax connectors with adaptors.

### C. Site Cleanup and/or Improvements

1. Improvements: Combine more than one user on a given facility as suggested above. Cost of consolidation of existing users and/or review, and relocation of 2400-volt overhead electrical distribution and service lines in accordance to IEEE standards for electrical overhead distribution lines, to open additional space for new user(s) shall be borne by the proposed new user(s).

#### 2. Compliance with MPE limits:

a) Users of CMCS shall ensure their transmitting facilities, operations or devices, are in compliance with MPE limits for human exposure to RF adopted by the FCC.

These MPE limits are generally based on recommended exposure guidelines published by the National Council on Radiation Protection and Measurements (NCRP), American National Standard Institute (ANSI) Standard C95.1-1992, developed by the Institute of Electrical and Electronics Engineers (IEEE), and adopted by ANSI.

Acceptable methods to determine compliance are outlined in the FCC's Office of Engineering and Technology (OET) Bulletin 65 entitled *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*.

Other methods and procedures based on sound engineering practices may also be used to evaluate compliance. This documentation is required, when existing facilities are modified, and for new users.

b) Holders of BLM authorizations that subleases to other users shall ensure that overall, their facility is in compliance with the FCC requirements. All significant contributors to the ambient RF environment at the facility shall be considered including those otherwise excluded from performing routine RF evaluations.

c) Applicants seeking new authorization from BLM shall submit a statement or certification confirming compliance with the limits for human exposure, unless the facility, operation, or transmitter is categorically excluded by the FCC from routine evaluation. Those applicants categorically excluded shall submit to BLM in advance, technical information showing the basis for their compliance with the MPE limits.

d) CMCS users, holding BLM right-of-way grants or leases that are not categorically excluded by the FCC from routine evaluation, are required to submit documentation to the BLM demonstrating their facilities comply with the FCC specific MPE guidelines for human exposure to RF radiation.

End of CMCS Technical Standards