

EQUIPMENT INSTALLATION CODE

Minimum requirements

1. EQUIPMENT MOUNTING:

- A. Each space allocated in the building is based on the space required to occupy a standard 19" wide rack space. The actual floor space allowed is 24" X 24". All equipment, whether actually rack mounted or housed in a cabinet, shall not exceed these measurements. Ventilation of equipment, power and RF transmission lines to be taken into consideration.
- B. The rack or equipment cabinet is to be securely mounted to the floor to prevent such equipment from being tipped over accidentally while someone is working in front or behind such equipment.
- C. Cabinets are not to be stacked on top of other cabinets without securing the top cabinet to the one below. If the lower cabinet is not owned by the same tenant, then permission must be gained from the tenant prior to drilling or mounting to the lower cabinet.
- D. All racks / cabinets will be secured electrically to the earth-ground provided in the building. This is to be accomplished using heavy braid, or a minimum of #4 stranded conductor.
- E. All transmission cable will be routed neatly, and secured in the provided overhead cable trays. Excess cable is not to be spooled up in the cable tray.
- F. All transmission cables shall be terminated with a "poly-phaser" upon entry to the building. Jumper cables, from transmission lines to individual racks or cabinets, will be run to equipment racks / cabinets neatly and kept as short as possible.
- G. No equipment is to be set on the floor around the rack or cabinet space, with the exception of duplexer cavities or transmitter-combining equipment, which will occupy the next adjacent rack/cabinet space. All cavities should be mounted in a cabinet whenever possible.

2. ELECTRICAL WIRING:

- A. All equipment, connected to commercial power, must have the standard grounded three-prong plug, and the safety ground must be intact on the plug. "Twist-lock" type plugs are required as outlets are mounted on the ceiling, facing downward.
- B. Outlet strips and outlet boxes used to operate several pieces of equipment in a rack, must be permanently affixed to the rack or cabinet.
- C. All batteries must be housed in a plastic box with a lid. This will avoid accidental access to the battery terminals, and will also contain any chemical leakage. All batteries should be kept within the allocated floor space. Additional space for batteries if needed will be considered.
- 4. Wiring from batteries to equipment must be neatly run, and any connections to the batteries must be fused as close to the battery(s) as possible.
- 5. All cabling and harnessing required for a given rack or cabinet, will be neatly tied, or dressed, to the specific rack; or in the case of cabinets, all cabling will be neatly routed inside the cabinets. No cabling is to hang or drape outside of the cabinet(s).

3. RADIO FREQUENCY TRANSMISSION:

- A. ALL LMR and PAGING, TRANSMITTERS not equipped with a Pass-Notch duplexer, will have an additional pass cavity installed to prevent spurious emissions and minimize ambient RF noise to the other equipment installed at this, and adjacent sites. An isolator is also required.
- B. All non-rigid cable used as jumpers between transmitters and transmission line, will consist of Belden type "LMR-400" etc, RG-9, RG-213, RG-214. RG8X "Minifoam" and similar cable will NOT be allowed, as these cables do not meet required shielding specifications for use as transmission cable. Single shielded cable may be used for "receive" purposes only.
- C. All cabling from the building to tower, including on the tower to the antenna, shall consist of a minimum of ¼ inch jacketed "Helix". Semi-rigid "LMR-400" etc cable and non-rigid cable, such as RG8, RG, 213, RG-214, RG8X, etc. will NOT be used as transmission cable exiting the building. Unjacketed hardline will NOT be allowed. All jumper cables from hardline to antennas, will be no more than 6 feet in length.
- D. All RF connections are to be kept tight and water proof.
- E. All RF cables, from the tower to the building, must be terminated on equipment of proper impedance, or the cables are to have a termination load of proper impedance attached, if not connected to equipment. RF cabling un-terminated, is impedance mismatched and will have the potential ability to radiate inside the building and cause interference to other users.

F. All transmission cables entering the building will have the outer shield bonded to the earth-ground provided at the cable entrance. "Andrew" type grounding kits are the preferred method to accomplish this. This may also be accomplished using copper braid with a minimum width of ½ inch. The braid is to be secured to the outer conductor by soldering to the conductor, or by means of a stainless hose clamp of the appropriate diameter. This connection is to be waterproof.

G. No transmitting antennas of any type are permitted to be installed inside the buildings. Use common sense discretion when transmitting with cellphones and hand held radios while inside buildings.

ANTENNA MOUNTING:

- A. All antennas are to be mounted on the tower structures. No antennas will be mounted to the buildings without prior written approval from the site manager.
- B. All antennas mounted on the tower structure shall be mounted using commercially accepted galvanized or stainless hardware.
- C. All cables run on the older Broadcast tower structure will be secured using stainless steel hardware or insulated wire.
- D. All cables run on the newer LMR tower must be secured to the cable ladder, using only the proper "Andrew" push in hardware made for this purpose. No cables are to be run on the tower legs.
- E. Antennas are not to be installed or removed at the site without prior authorization from the site manager.
- F. Antenna apertures (patterns) are not to be modified without prior authorization from the site manager.
- G. The site manager must be notified of any "swapping" of radios to antennas in multiple radio / antenna installations.

5. DOCUMENTATION AND LICENSING:

A. All tenants are required to have a current F.C.C. license permitting transmissions from Usery Pass prior to the installation of equipment. Permission to occupy the site will not be granted without proper license and correct coordination.

(*) Usery Pass site coordinates:

North Latitude: 33 degrees, 29 minutes, 33 seconds

West Longitude: 111 degrees, 38 minutes, 26 seconds

- B. All transmitters are to have an up-to-date copy of the FCC License for that transmitter's frequency attached to the specific cabinet or rack, or in a folder, on site, within easy reach for inspection.

6. INSPECTION / ACCESS :

- A. All buildings and equipment will be inspected for compliance of this installation code by the site management annually, or at any other time if necessary in the process of interference troubleshooting.
- B. All transmitters will be inspected to determine compliance of their F.C.C. authorization (frequency, modulation & transmitter power output).
- C. All transmitting antennas will be inspected along with transmitter output power to insure that maximum F.C.C. authorized ERP is not exceeded.
- D. Lessees must either provide an authorized representative on site for this inspection or provide the site manager with access to their buildings and equipment.
- E. Lessees will be given 30 days notice to date of annual inspection. Interference troubleshooting inspections will be done without notice as needed.
- F. Should a specific transmitter cause harmful interference, the transmitter's licensee will be notified and requested to shut off said transmitter immediately. If the licensee cannot be located or if response will be delayed, the site manager will shut off said transmitter. This will be done by shutting off the circuit breaker to said transmitter if there is no access to the building or any other means of shutting it off.

Amended 07 December 2001

DAP