Chris Arneson
ERRCS Specialist
chris.arneson@phoenix.gov
602-534-8226 – *Office*
602-856-1531 – *Cell*

National Institute for Certification in Engineering Technologies (NICET) Requirements

- As of 8/01/2024 installation technicians who are servicing any ERRCS projects must have a minimum NICET IB-PSC Level 1 certification. Technicians which have 6 months or less of in-building experience, must be overseen by a NICET IB-PSC Level 2 certified technician. Project leads are required to possess a minimum NICET IB-PSC Level 2 certification. Project leads must be on site during commissioning and testing of the system. All ERRCS project designers are required to have the NICET IB-PSC Design certification.

RWC Technical Requirements for ERRCS

For new BDA's either due to new construction or retrofits/repairs:

- Class A amplifiers (see FCC 47 CFR 90.219 (a)) must be used for any ERRCS installed to operate on the RWC 700 MHz P25 network.
- Existing Class B amplifiers must continue to be maintained on an annual basis. If an existing Class B amplifier fails, it must be replaced with a Class A amplifier.
- The BDA shall support uplink squelch.
- The BDA must have manually controllable AGC - Automatic Gain Control and/or manually controllable ALC - Automatic Level Control.

BDA Configuration

- BDA maximum uplink and downlink gain settings shall be 20dB less than isolation measured between donor antenna and the DAS.
- All appropriate RWC frequencies shall be programmed into the BDA.
- Typical filter configuration shall be 12.5 Khz unless approved by the RWC.
- Uplink Squelch should be enabled.

Donor Antenna

- The donor antenna shall be a directional antenna.
- The donor antenna frequency range shall support 700 MHz public safety band, 769-775 MHz (downlink) and 799-805Mhz (uplink).
- For DAS projects requesting design approval after August 1, 2024, the donor antenna shall support:
    - A horizontal beamwidth of 30 degrees or less
    - A vertical beamwidth of 30 degrees or less
    - A front-to-back ratio of 27db or greater

  Antennas that meet this requirement listed below. If other antennas are discovered that meet these requirements, please feel free to update us.

  1) ADRF: AD-PA-617-960-D
  2) Gamma Nu: F16V28DHFB
  3) Ventev: VHG-VL3015-ODNF
  4) Comba: ODP-030V14MN
  5) Westell - CS03-717-999
  6) Potter - Donor-698-960-15

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- The donor antenna must be placed and oriented with an unobstructed view of the donor site. This criterion is concerned principally with near field obstructions such as parapets, HVAC units, ducting, screen walls, etc. Antennas need to be secured clearly above any near field obstacles. Wind loading should be considered when installing and securing antennas. Line of sight buildings or other obstructions will be considered by the RWC during uplink testing.
- The donor antenna must be oriented at the pre-approved donor site mentioned in the plan's acceptance document given with plans approval.

RWC DAS Technical Requirements

- Filtration to remove nearby saturating cellular noise or other signals may be required.

Fiber DAS Policy (Excerpts from RWC Policy O.12-12)

- 6.5.2. Multiple building campuses with more than one (1) building require a single campus wide solution if an ERRCS is needed. A campus is defined as any of the following criteria:
- 6.5.2.1. An ERRCS fiber DAS system would be required for all buildings located on the same parcel as identified by the county assessor's office.
- 6.5.2.2. The grounds and buildings that resemble a campus, i.e. college or university campus, hospital campus, or landscaped corporate campus, data center campus, and multi-tenant occupancies.
- 6.5.2.3. Buildings are connected or within 1000' and are of same ownership.
- 6.5.2.4. As deemed by the RWC, buildings or structures within a campus setting may cause radio frequency interference.
- 6.5.2.5. If a building requires more than a single BDA, per the manufacturers installation recommendations, an ERRCS fiber DAS system installation would be required.

Emergency Power Off (EPO) Switches

- For data centers, large manufacturing facilities, and other sites with access restrictions, an EPO switch will need to be installed to allow for prompt amp shut off in the event of interference.
- Configuration shall be included in the system design documents to be submitted as part of the RWC Radio Amplification System Rebroadcast Authorization Application.
- EPO's shall be installed at the head end unless an alternative location is approved by the RWC.