

Form 442 Confirmation Number: EL860531
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Exhibit 3 – Technical Data – Explanation of Antennas

The types of antennas anticipated for use with the radios specified are as follows:

- 1) Stubby whip antenna (standard manufacturer supplied antenna)
 - Beamwidth: omnidirectional
 - Orientation: horizontal and vertical
- 2) Vertical quarter-wave monopole
 - Student constructed
 - Adjustable-length whip antenna mounted on 1 ft square Plexiglass or equivalent, with and without various ground planes (consisting of copper tape)
 - Coaxial fed
 - Beamwidth: omnidirectional
 - Orientation: vertical
- 3) Yagi multielement antenna
 - Student constructed
 - Driven, reflector, and director elements of copper tape mounted on 1 ft square Plexiglass or equivalent
 - Up to 4 directors (6 elements total)
 - Coaxial fed driven element
 - Beamwidth: 60° between half-power points (estimated)
 - Orientation: vertical and horizontal
- 4) Dipole and folded dipole antennas
 - Student constructed
 - Elements of copper tape mounted on 1 ft square Plexiglass or equivalent
 - Coaxial fed
 - Beamwidth: 90° between half-power points (estimated)
 - Orientation: vertical and horizontal