Selection of Portable Radio Antenna Standard Operating Guidelines

1 Purpose

The purpose of this Standard Operating Guidelines (SOG) is to promote the use of vendor approved half-wave antennas for portable radios and to advise Maryland FiRST users of the lower performance of quarter-wave antennas.

2 Scope

These recommended guidelines apply to both primary users and interoperability users on the Maryland FiRST Radio System. This policy supersedes and replaces the Selection of Portable Radio Antenna SOG that was approved by the Radio Control Board on September 28, 2016.

3 Authority

The Statewide Interoperability Radio Control Board has the authority to establish Standard Operating Procedures, Quality of Service Standards and maintenance guidelines for the Maryland FiRST radio system in accordance with the Annotated Code of Maryland, Public Safety Article, § 1-501-1-503.

4 Background

The planned coverage of the Maryland FiRST 700 MHz public safety radio system was predicated upon the use of a two element half-wave antenna. This antenna is designed to provide optimal coverage in the 700 and 800 MHz frequency bands as well as the capturing of global positioning system (GPS) satellites when required. The extensive coverage testing assessments conducted and the subsequent predictive coverage maps produced were based on using the two element half-wave antenna on portable subscriber radios. Some agencies have procured portable radios capable of operation in additional frequency bands: e.g. VHF and/or UHF as well as 700 and 800 MHz. These multiband portable radios, with a GPS element, also benefit from using the two element half-wave antenna.

5 Guidelines

It is highly recommended to use only radio manufacturer approved half-wave antennas on portable radios operating on the Maryland FiRST system. The use of any portable radio antenna other than a manufacturer approved half-wave antenna is discouraged by Maryland FiRST and may be prohibited by the device's owning agency/organization.

There may be unique circumstances in which antenna alternatives may merit consideration. For organizations utilizing the APX portable radios, the manufacturer can provide a quarter-wave antenna with GPS element, when required. The quarter-wave antenna is commonly known as a "stubby" antenna. The coverage characteristics of the quarter-wave antenna are such that the radio will not perform in the transmission or reception mode as well as a device with a half-wave antenna. The trade off when using the "stubby" is an increase in comfort level and covertness of the smaller size antenna verses a lower technical performance then the half-wave antenna.

6 Responsibilities

It is the responsibility of the State agency or other authorized Maryland FiRST users to select the appropriate portable radio antenna, including the GPS element, when required, that best supports the mission of the user, and recognizing the inherent reduction of performance when the quarter-wave antenna is used in comparison to the half-wave. Maryland FiRST will not add infrastructure to its system to provide greater coverage to offset signal loss attributed to portable radios equipped with quarter-wave antennas.

Any damage to a portable radio arising from using an incorrect antenna is the sole responsibility of the State agency or other Maryland FiRST users operating the portable radio.

7 System Manager Contact Information

The Maryland FiRST System Manager may be contacted at: MDFirstSystem.Manager@maryland.gov

8 Approval

This SOG was reviewed by the Maryland FiRST Operations Group on November 15, 2017 and was approved by the Statewide Interoperability Radio Control Board, by majority vote on: December 13, 2017.

Norman J. Farley
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Michael G. Leahy
Chairman of the Board