

PORTABLE HIGHWAY ADVISORY RADIO SYSTEM.

(REV 12-11-00) (FA 6-20-01) (1-02)

ARTICLE 102-3 (Pages 106-111) is expanded by the following new Subarticle:

102-3.9 Portable Highway Advisory Radio System:

102-3.9.1 General: This specification establishes the physical and operational requirements for a portable highway advisory radio system. A 2.5 mile [4 km] range A.M. Highway Advisory Radio (HAR) system for this project is to be utilized in transmitting messages to motorists via 880 KHz and/or 1610 KHz AM radio frequencies. The messages will advise motorist's of construction work ahead, detour routes, lane changes, etc. The HAR will be placed at a location directed by the Engineer.

The system is to be a totally self-contained unit with a photovoltaic (solar) battery storage power system mounted on a towable trailer. The system shall have the capability of operating for a minimum period of ten days without solar recharging of the battery system. The system shall be capable of broadcasting at either 880 KHz or 1,610 KHz controllable by the user. All hardware items and materials shall conform to the requirements as specified herein.

The portable highway advisory radio system shall be activated only during active work activities and will be deactivated when no work is being performed. The radio system shall be activated and deactivated by a dial-up control system to allow operation of the radio system from a remote location via cellular phone or standard telephone line. The radio system shall be protected by a security code.

Manufacturers seeking approval for a Portable Highway Advisory Radio System shall submit an application, Material Safety Data Sheet (MSDS) and certification in accordance with 6-1.

Only use Portable Highway Advisory Radio Systems listed on the Qualified Products List.

Manufacturers providing the device described herein shall provide the Engineer with a certified test report indicating the device meets these specification requirements.

102-3.9.2 Transmitter:

The 2.5 mile [4 km] Amplitude Modulation (A.M.) transmitter shall be solid state, dual frequency, produce 10 watts output power and have Federal Communications Commission (F.C.C.) type acceptance for Highway Advisory Radio usage. The broadcast system shall meet all applicable F.C.C. rules and regulations including but not limited to stipulations on field strength, and audio band pass. Each transmitter shall be supplied with a headphone jack and/or volume controller speaker for monitoring output messages. Selection of frequency shall be easily made through the front panel of the unit.

If the specified frequencies do not effectively provide a clear signal, it shall be the responsibility of the Contractor to change the transmitter as needed and as directed by the Department at no additional costs.

102-3.9.3 Antenna:

The transmitter shall be supplied with two antennas, one for the 880 KHz operations and one for the 1610 KHz operation. The antennas shall be vertically polarized

monopoles and shall have a tuneable tip and loading coils. They shall be self supporting buffered from the transmitter by lightning protectors and capable of withstanding winds up to 80 mph [130 km]. The antennas shall be removable as needed to allow the user to utilize either antenna, depending upon the selected broadcast frequency of 880 KHz or 1610 KHz. The manufacturer shall specify the grounding system for the unit.

102-3.9.4 Digital Voice Recorder:

The digital voice recorder shall have the following characteristics as a minimum:

- (1) 20 minutes recording time with variable message length, multiple message capability and pre-wired expansion provision for adding memory at a later date to increase message storage. Recording media shall be solid state (not tape).
- (2) Remote record so that message can be recorded and/or changed by touch-tone telephone. Telephone interconnect to allow downloading or prerecorded messages from a cassette player to the recorder. The system shall be protected by a security access code.
- (3) Second channel to allow broadcasting to continue uninterrupted during recording of other messages.
- (4) Internal battery backup capable of retaining all stored messages during power interruptions from normal battery system for a minimum one hour duration. When normal power is restored, system will continue normal operation.
- (5) Variable digitizing rate so that quality or recording can be controlled.
- (6) Front panel speaker with volume control and built-in headphone jack for monitoring/editing messages.
- (7) Microphone and built-in jack for use in recording messages.
- (8) Enable/disable control.
- (9) Message sequencing feature to allow messages to be played in any order.
- (10) Message status readouts.

102-3.9.5 Trailer Assembly: As a minimum, the trailer shall be single axle two wheel with frames fabricated of galvanized steel meeting ASTM A500 standards with a yield strength of 45,000 psi [310 MPa]. The load rating of the trailers shall equal or exceed the weight of the trailer and all equipment on the trailer, including the solar charging panels and storage batteries.

The trailers shall be equipped with an appropriate size ball hitch and yoke turning wheel and shall meet all equipment requirements set forth in Florida Statutes, Chapter 316 and by all rules, regulations or codes adopted by the Department of Highway Safety and Motor Vehicles.

The trailer shall be painted Omaha orange, Federal Standard 595-B, Number 12243.

102-3.9.6 Solar Power System: The solar charged battery power system shall be capable of providing all power needed for the system to operate for a minimum of ten days without sufficient sunlight to provide recharging. Documentation shall be provided to the Engineer certifying the solar power system operating capacity.

102-3.9.7 Messages: The Engineer shall establish standard messages. The Engineer will be responsible for the updating of the message and changing the message sequence as the maintenance of traffic dictates. The Contractor will designate a minimum of two on-site personnel as the operators of the Highway Advisory Radio System. These two employees and the Departments Engineer shall be the only ones with security codes at the job sites.

102-3.9.8 Signage: The Contractor shall provide portable advance signing with flashing beacons at locations directed by the Engineer to inform the motoring public of the existence of the Highway Advisory Radio System and the frequencies over which broadcasts may be heard.

The Contractor shall provide signs with a sign face area of 85 ft² [7.9 m²]. The Engineer shall furnish the sign message. The signs shall consist of reflectorized white letters and border with a blue reflectorized background. The Engineer shall approve the sign face layout before being placed in use. The Engineer shall direct placement of signs.