

6870000 Highway Advisory Radio  
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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Comment: (7-3-13)

**687-2.7 HAR Sign and Flashing Beacons:** *Ensure HAR system is able to activate flashing beacons that are activated when an associated HA is transmitting.*

*Provide 12 inch beacons, communications, power and material needed to provide a fully functioning flashing beacon system. Ensure that the flashing beacons use a NEMA-rated flasher circuit. Ensure that the flashing beacons can be operated locally and remotely.*

There are 3 ways to activate the beacons: locally, remotely via broadcast DTMF, and remotely via network interface. We have both remote capabilities in D4, we have found broadcast DTMF activation to be unreliable. Suggest language to encourage network activation of beacons where feasible.

**687-3 Installation Requirements.**

*Obtain all required licenses to operate the HAR as per FCC requirements using the services of the HAR manufacturer. Perform all necessary on-site testing to select the clearest and most appropriate operating frequency for all HAR transmitters at the proposed locations. Submit the results of the frequency search, testing, and the recommended frequency selection to the Engineer for approval prior to application for FCC licenses.*

*Provide all utility coordination, power design and power service installations to obtain power for the HAR and flashing beacon sites.*

*Ensure that any public network connections (PSTN, cellular, or other connections) used for system interconnect are approved by the Engineer.*

*Ensure that the synchronization eliminates interference and audio distortion within possible overlapping areas. Ensure the antenna is tuned to the frequency of the transmitter.*

Suggest requiring signed and sealed RF field survey by qualified engineer before the HAR frequency is chosen. This will protect the Department in the event of interference with a commercial radio station.

Response:

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Comment: (7-26-13)

District Three staff have reviewed the subject procedure and have the following to offer at this time. Please let me know if you need anything else.

For Sub article **687-2.5 Antenna Assembly** and Sub article **687-3 Installation Requirements** - consider adding the following: *“Provide a field measurement for RF forward and reflected power (often referred to as SWR) after the HAR system has been installed”*.

Backup information: Although there is a requirement to tune the antenna to the operating frequency of the HAR, there are additional components which might affect the antenna system including cabling, connectors, grounding, installed antenna height, etc. This measurement should be included to ensure that value does not exceed the manufactures specification and is recorded for FDOT records. Allowing an HAR to operate with high reflected power or high SWR could cause unintended RF feedback into the transmitter causing distortion or spurious emissions. Maintaining a recorded value for this measurement might also provide a baseline metric for any future repair or adjustment of the antenna system or to resolve issues with the FCC should they be needed.

For Sub article **687-2.8 Power System** – consider adding the following: *“Provide a low voltage drop out circuit or device that will remove all power from the HAR system should the available supply voltage drop below the manufactures specifications for minimum power requirements”*.

Back up information: Low voltage can also cause unstable transmitter operation. Low voltage in transmitter circuits typically can cause unstable oscillator and amplifier stage operation. Amplifier stages will typically operate erratically and could break into oscillation. A commercially available low voltage drop-out circuit (device) would address these issues and could be added as a separate component.

Response:

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Comment: (7-10-13)

Is there an accommodation for persons who are deaf or have a hearing impairment? Can they get the same information in an alternate format? (i.e., TTY, changeable message signs, etc.?) Will this system coordinate with or be a part of the "511" system?

Response:

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