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MX800 Important Firmware Update

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Spectra Engineering and OEM MX800 transceivers are shipped with the latest copy of the firmware. Spectra Engineering periodically releases updated firmware to add new features to or correct problems in the transceiver.

In a recent test of the firmware, Spectra Engineering has identified some conditions that affect the performance of the transceiver. This bulletin provides a brief description of the potential issues found and recommends a firmware upgrade for correct operation of the transceiver.

Important Issues Identified

The identified issues have been linked to the firmware versions below.

Versions greater than 3.0.5

A degradation in the Transient frequency interference above previous limits is generated at the onset of transmitter switch on or off. This interference affects the adjacent channels. Some systems may or may not be effected by this and it is recommended an upgrade be performed to minimise any potential future issue.

Version 3.3.25

There is an error in the Tx CTCSS encoder process leading to the incorrect subtone being transmitted when the PTT is from the rear connector or the microphone socket. When operating as a repeater, the transmitter will transmit the received CTCSS subtone. However, when operating in multiple CTCSS decode mode, the transmitter will transmit without any subtone.

Solution

The only way to correct the identified issues is to upgrade the firmware to version 3.4.0 or later.

Firmware version 3.4.0

Firmware version 3.4.0 corrects the above issues as well as some other minor problems and introduces some new features as summarised below.

New Features

- Morse code without CTCSS.
- Morse code only in Repeater mode.
- Ability to have cross subtone modes, i.e. TX=CTCSS and RX= DCS

Please visit www.spectraeng.com.au for the latest updates.

Summary of changes in version 3.4.0

- Corrections to Transmitter ON and OFF Transient frequency wave forms.
- Corrections to RS232 communication.
- Corrections to Simplex Coax Relay delay time and process.
- Corrections to output Alarm 1 processing and mute output.
- Corrections to Morse code modes and timer intervals processing.
- Corrections to the handling of channel 255.
- Corrections to CTCSS and DCS processing, including subtone level adjustment for DCS.
- Removal of an Alarm Tone on TTR TX tail. New function Alarm Tone function to be released soon.
- Removal of Power save shutdown feature, MXACU will control this function.

Upgrade Notes

To upgrade the transceiver firmware you will need to be able to program EPROMs, especially the 27C512 type. Please contact support@spectraeng.com.au to request access to the website downloads for the binary file of the latest firmware or if you are unable to program EPROMs.

Before upgrading the radio, we recommend that you save your channel information and configuration settings using MXTOOLS. It may be advantageous to have MXTOOLS running during the entire firmware upgrade process. The upgrade procedure is listed below:

1. Turn off the power to the radio.

2. Remove the lid of the MX800 transceiver and locate the EPROM (IC3). The EPROM will be labelled with the firmware version number as shipped from Spectra Engineering.

3. Carefully remove the EPROM taking care not to damage the pins or the IC socket. The removed EPROM can be erased and re-programmed if you have access to a suitable UV light source and an EPROM programmer.

4. Carefully insert the replacement EPROM, ensuring the locating indent on the EPROM match outline on the PCB and the IC socket. Ensure that the EPROM window is covered with an opaque label to prevent erasure due to ambient UV light. Check that all the EPROM pins are inserted in the IC socket and none are damaged or bent.

5. Apply power to the radio before replacing the lid. Check that the Power LED is lit. Remove power and replace cover.

After installing the new firmware, write both the channel file and the configuration files to the radio using MXTOOLS. Ensure that the radio is now operational.

When upgrading from older version of firmware, it is possible that you may need to recalibrate the radio. The easiest way to verify if a recalibration is necessary is to run MXTOOLS diagnostic screen and PTT the MX800. The diagnostic forward power reading should be within 2 Watts when compared to an external power meter reading. Also the check the temperature and RSSI level.

Please refer to sections 5.1.5 through 5.1.7 of the 'MX800 Technical Manual' if recalibration is necessary, otherwise the radio should be suitable to be returned into service.

Additional Notes

If you require further information on or assistance with this matter, please contact support@spectraeng.com.au or visit the Spectra Engineering website at www.spectraeng.com.au.