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MX800 Important Firmware Update

Tuesday, 1 July 2008

MOTHERBOARD BUILD VERSION C OR LESS WITH NEW RELEASE FIRMWARE

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 or to improve performance of the transceiver.

In recent tests of the firmware, Spectra Engineering has found it necessary to do some minor hardware changes in order for the new firmware version to be fully effective. This bulletin provides information on hardware modification needed when upgrading to the latest firmware with older motherboards.

Important Issues Identified

Additional improvements have been made to the transmitter to lower the amount of transmitter adjacent channel power noise during the transient phase of key up and key down. This will further improve system and product performance for current and future global standards and allow compatibility with new options and enhancements.

It is not recommended to upgrade the firmware without the hardware change as it has been designed to work together. Failure to do so may result in degradation of the transient performance resulting in some adjacent channel splatter.

Some systems may or may not be affected by this and it is recommended that an upgrade of motherboard components to match firmware upgrade release $\geq 3.5.14$ be performed to minimise any potential future issue.

MX800 mother boards with a build revision equal to and less than 'C' would be affected by this upgrade if installed latest firmware versions are $\geq 3.5.14$.

The build identifier is only located on Mother Board controller PCB's made after 2006. This is a bar code label situated on the mother board controller below IC25. Older PCB's without barcodes requires modifications to suit the new firmware $\geq 3.5.14$.

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Examples Only

1. **REV D** **No** modifications required, ok to use new firmware $\geq 3.5.14$



2. **REV C** **Yes** modifications are required, to use new firmware $\geq 3.5.14$



3. Mother Board controller PCB's that have been upgraded at factory prior to shipments have been fitted with two labels as shown below.



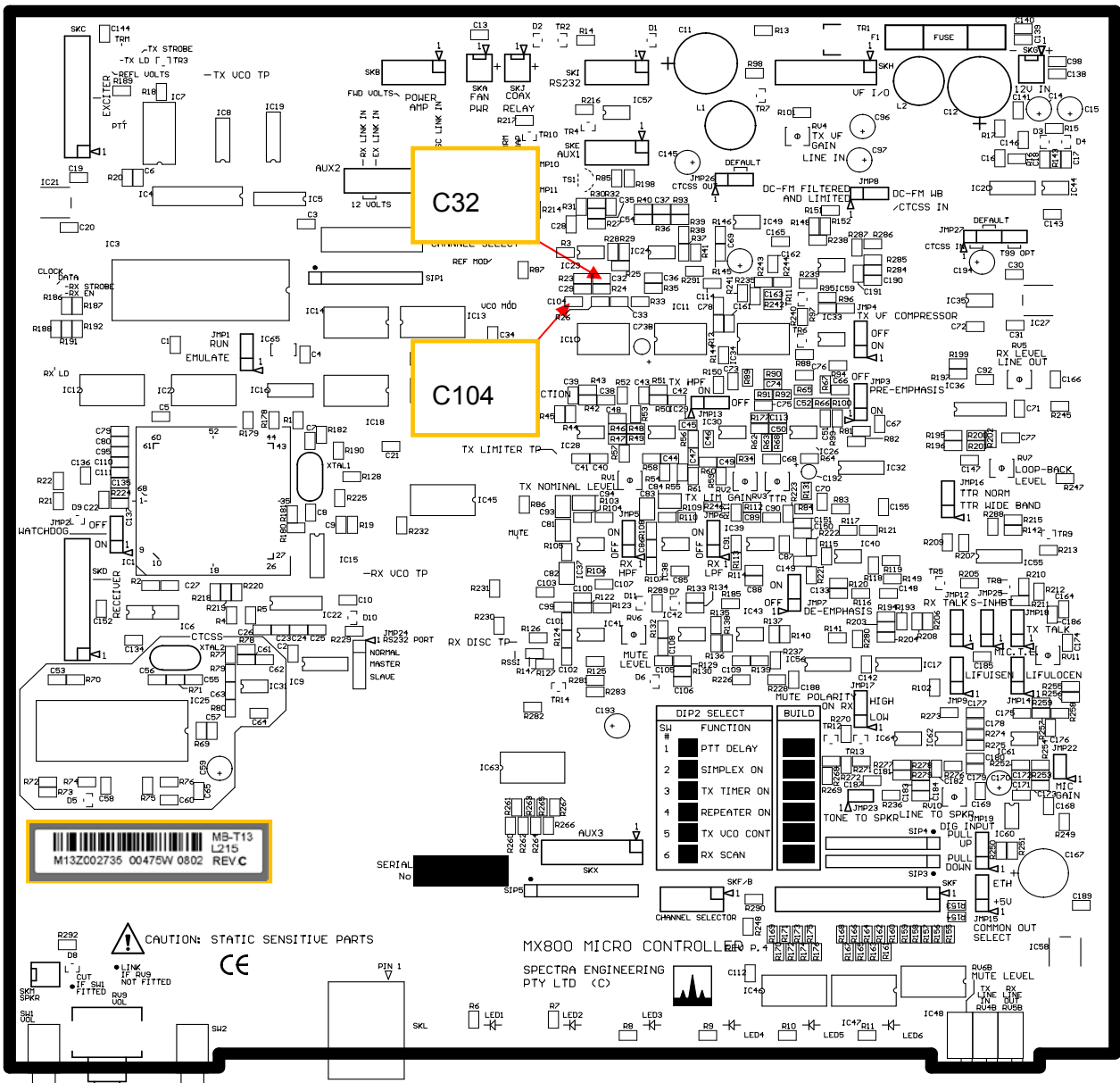
Factory Modifications have been carried out.
 Mother Board is now upgraded to **REV D** assembly.
No modifications required, ok to use new firmware $\geq 3.5.14$.

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Solution

The only way to correct the identified issues is to swap mother board PCB components C32 & C104 over when upgrading firmware.

REMOVE	C32	1nF 0805 X7R
FIT	C32	10nF 0805
REMOVE	C104	10nF 0805
FIT	C104	1nF 0805 X7R



Upgrade Notes

To upgrade the transceiver firmware you will need to be able to program EPROM's, 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 labeled 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.

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