Technical Note TN-825

TM8000 Mobile radio Release 2 Upgrade Instructions

19 December 2003

Applicability

This Technical Note details the changes in Firmware and PC Application in Release 2, and instructions on upgrading existing TM8100 radios to Release 2.

1. Information

Release 2 Changes

The following features have been included in the release of Firmware v1.01.08.03 and in conjunction with PC Application v2.57.00.03.

- ➢ **Companding Audio and Automatic Noise Reduction**

- ➢ **Voting**

- ➢ **DTMF ANI**

- ➢ **Direct connect GPS**

- ➢ **CCDI-2**

- ➢ **THSD Tait High Speed Data**
  Data rates at Release 2 are 12000 bps on wideband or narrowband channels.

For further information about these features please see Release 1 Technical Note TN-807.

First Production Serial Numbers

From early January 2004 the production line upgraded existing Release 1 radios (v01.00.10.01) in stock to Release 2 Firmware (v01.01.08.03). All radios shipped after January 14th 2004 have Release 2 Firmware.

From radio serial number **19005538** all radios built have Release 2 Firmware and the watchdog timer fitted.

**Upgrading radios
to Release 2**

Do NOT upgrade Demo / Field Trial (DMABxx) radios with serial numbers prior to **19001450** to Release 2, this will render the radio inoperable.

To upgrade production TM8100 Firmware to Release 2:

➢ Upgrade the Calibration and PC Application versions to Release 2 or later. These are:
  • PC Application v2.57.00.03
  • Calibration Application v2.58.00.19

➢ Read and save the radio's personality (data file)
➢ Read and save the radio's calibration
In the PC application:
➢ Click on Tools > Download… > Download
➢ The radio will display "UP" and the Download Application will look for the saved location of the Firmware QMAFstd_01_01_08_03_EP1C6.S2
➢ Once the Firmware up-load is complete click the tickbox for "Allow Unprotected Upgrade" then click Download again and click on the FPGA version QMAGstd_01_01_01_16.S2
➢ The following pop-up dialog box will appear:

To continue, **remove** the DC supply to the radio and wait 5 seconds then re-apply DC supply
➢ The download will continue automatically

Once Firmware and FPGA download is complete the radio will return to "PR" mode
➢ Reprogram the saved personality back to the radio
➢ Reprogram the saved calibration back to the radio
The radio will now reset to normal operation

Click on Tools > Download… > Report Configuration to confirm the Firmware has updated in the radio.
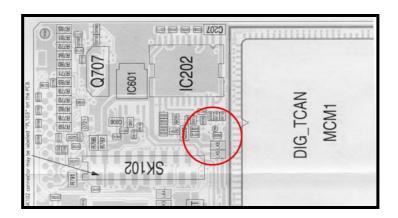

Fitting the Watchdog timer

The watchdog timer provides the TM8100 radio with a non system error reset. Should the processor stop for longer than 1200mS the timer will restart the radio.

This function is <u>separate</u> from the normal system errors that can be captured by the Reset-On-Error tick-box in the PC Application Start Up page.

From introduction of Release 2 into manufacturing TEL will be making the change to always place the link for new radios built.

Retro-fitting the watchdog link is entirely optional. This means that if it is not fitted there will be no difference to current operation. However, if the added security of watchdog reset is desired then the decision can be made to fit the link.

The watchdog link is R602 located on the top side of the main board between TP200 & LK6. This is a zero ohm 0603 resistor. **IPN** 038-10000-00.

Note: Using the watchdog timer comes with a warning. A watchdog reset will cause a complete processor restart and hence also release the power supply latch signal momentarily.

If power supply LK1 is not fitted, or if the IGN or INT_OPT_PWR signals are not asserted at the time, then the radio will switch off with a watchdog reset and require a manual restart. Thus, the watchdog timer should only be used with special care paid to power link settings and system design if used in remote out-stations etc.

Compander Setting	The Compander was enabled by default in earlier Firmware even though it did not function. With Release 2 this feature can be enabled and if existing personalities are loaded into the radio the audio companding option will be enabled by default.
	Ensure any recently upgraded radios have this option un-ticked unless the feature is specifically required. The tickbox is found on the DETAILED tab of the CHANNELS page.
	If left enabled and used with other non-companding radios the audio will sound distorted.
Slow PC Issue Resolved	Reports were received from some users of pre-Release 2 test PC Application V2.55.00.00 where reading radios with older desktop computers of less then 266MHz would cause the read/write communication to stop prematurely.
	Using Release 1 PC Application v2.47.00.16, no problems were encountered. The problem resolved was based around the expected timeout handling.
External PTT Issue Resolved	A fault was noted with Release 1 Firmware that caused a lock-up of the External PTT input on the Auxiliary Port. This issue was resolved with later Firmware iterations prior to Release 2. Please upgrade existing radio(s) to Release 2 Firmware v1.01.08.03 or later.
Compliance	None.
CSO Instruction	Please inform all technical staff and accredited dealers of the updates in PC Application, Calibration Application and radio Firmware available for the TM8100 mobile radio.

---

2. Issuing Authority

Name and Position of Issuing Officer	Graham Brenchley Technical Support Engineer
Confidentiality	Confidential – This message or document contains proprietary information intended only for the person(s) or organisation(s) to whom it is addressed. All Recipients are legally obliged to not disclose Tait technological or business information to any persons or organisations without the written permission of Tait.
Distribution Level	Associate and Tait Only

Document History	Original Release	19 Dec 2003	GCB
	Upgrade update	16 Jan 2004	GCB
	Resolved Issues	26 Jan 2004	GCB
	Serial Numbers	18 Feb 2004	GCB