Technical Support
TECHNICAL NOTE

TECHNICAL NOTE TN-1377b-SR

TM8100 Firmware v2.16 and PC Application v3.08

3rd July 2008
(Updated 4th July 2008)

Applicability

This Technical Note applies to the TM8100 mobile radio platform.
Radio bands supported: A4, B1, C0, D1, H5, H6, H7, G2, K5[1].

1. Firmware changes

V2.16

The issues and changes listed below have been implemented since last commercial release, v2.15 (Documented in TN-1325c-SR).

- THSD enhancements and updates. A number of existing database fields have changed and a few new ones have been added to improve the performance of THSD operation under varied conditions. These changes are detailed under PC Apps in section 2 of this Technical Note.
- Resolved an issue where v2.15 Firmware was causing the TM8100 to lockup on TX key when using 'Noise+RSSI' squelch detect type. Raised as Focus 32508 and resolved in a customer specific build v2.15.06.
- Fixed an issue where a PTT Failure in CCR mode was occurring. If a TM8100 is controlled by CCR and the EPTT's are also used, it was found that occasionally the TM8100 would suffer a PTT failure. The failure occurred when a CCR RX or TX command is executed at the same time that a PTT event occurred - Raised as Focus 31254.
- Fixed an issue where the TM8100 (FFSK and THSD) was occasionally partially resetting when a buffer overrun occurred - Raised as Focus 29950.
- Fixed an issue with RSSI mute hysteresis. This has been resolved through the addition of a 'Noise+RSSI' option available under 'Squelch Detect Type' - Raised as Focus 28308.
- Added an enhancement to allow control of the backlight. This is available via the GPIOs - Raised as Focus 26748.
- Fixed a reset issue when operating 2400 Baud FFSK with either Selcall or CTCSS/DCS signalling. NOTE: The combination of 2400+CTCSS/DCS + Selcall will not be supported in the TM8100. Refer to TN1245 for details.

[1] THSD operation has not yet been fully verified in K5 band

2. PC App Changes

V3.08

The changes listed below have been implemented since last commercial release, v3.06 (Documented in TN-1325c-SR).

The latest TM8100 PC Application - **v3.08.00** - can be downloaded from the support webpage.

- L3 Band (896-941MHz) support now included.
- Updates for THSD operation:

Data>General:

- **Field Change:** "Maximum Initial Frame Length" – FFSK has now been removed from the label and this field now sets the initial frame length for both FFSK and THSD data. This field is only available if the Transparent Mode Enabled check box is selected. The recommended (and default) setting is selected.
- **New Field:** "Tx Back-off Time (Min)" and "Tx Back-off Time (Max)"- Sets a random delay after receiving and before transmitting THSD data, to help avoid data collisions between multiple units accessing the same channel. Enter a minimum time between 0 and 500 milliseconds. Default is 0.
- **New Field:** "Channel Access Method" - Sets the access method for the data channel, which determines when the radio can transmit and whether back-off mechanisms are used. This option is only relevant for Tait high-speed data (THSD). Select Back-off or Unrestricted.

Data>RF Modems

- **Field Change:** "Layer 2 Protocol" - Sets the protocol the radio uses for transmitting and receiving Tait high speed data (THSD). Previously the options were either selected or unselected. There are now 3 options:

    1. **None:** Tait High Speed data is fully transparent. The radio will always transmit data in packets of approximately 147 bytes, with any data holes filled with **** characters.
    2. **Simple:** Tait High Speed data uses a basic form of the layer 2 protocol, with no addressing or confirmed service. Select this option for compatibility with the first version of the layer 2 protocol.
    3. **TOTAL:** Tait High Speed data uses a variant of the layer 2 protocol as programmed on the TOTAL Transparent Mode tab. TOTAL transparent mode offers additional features such as confirmed service and addressable radio units.

- **Field Change:** 'Number of Blocks" – The label has changed from "Number of FEC Codeword's". Sets the number of data blocks to wait before the next sync command is sent. This field is not relevant if the Layer 2 Protocol Enabled is TOTAL. Enter a value from 1 to 7. This field should not be changed from the default value of 7 (Full), unless there are specific requirements.

- **Field Change:** "THSD Lead-In Delay" – The minimum value has now changed from 5ms from 0ms.

Data>TOTAL Transparent Mode

- **New Form: TOTAL Transparent Mode**. (The contents are greyed out if Layer 2 Protocol is not set to "TOTAL" or if "THSD Modem Enabled" is not checked).

  This form sets whether TOTAL THSD transparent mode has a confirmed or unconfirmed data block structure. Confirmed delivery is used if the transmitting radio requires an acknowledgment of receipt. Within this form are a number of fields:

  1. **Total service** - Sets whether TOTAL THSD transparent mode has a confirmed or unconfirmed data block structure. Confirmed delivery is used if the transmitting radio requires an acknowledgement of receipt.

     I. **Unconfirmed:** the radio will operate with an unconfirmed data block structure.

     II. **Confirmed:** the radio will operate with a confirmed data block structure.

  2. **Radio ID** - Sets the radio's identity for operation in TOTAL THSD transparent mode. This identity is used to individually address the radio, when receiving data (as the Destination ID) and for responses during confirmed transactions. Enter an ID unique to the system in 16-bit hexadecimal format (four characters using 0 to 9 and A to F).

  3. **System ID** - Identifies the data system to which TOTAL transparent mode data is directed. The system ID must be the same for all radios in the fleet. Enter an ID in 8-bit hexadecimal format (two characters using 0 to 9 and A to F).

  4. **Destination ID** - Sets the destination address for all TOTAL transparent mode data. Enter the ID of a radio in the system in 16-bit hexadecimal format (four characters using 0 to 9 and A to F). Enter FFFF (default value) to send data to all addresses.

  5. **Link ID** - Identifies the link ID (similar to a port ID), to which TOTAL transparent mode data is directed. Enter a value in 8-bit hexadecimal format from 00 to FF.

  6. **TOTAL MTU Size** - Sets the maximum transmit unit size, which is the largest packet that the radio will transmit at one time. Leave this option at the default value of 500 bytes, which matches the receiver unit size.

7. **Confirmed Mode Retries** - Sets the maximum number of retries when sending TOTAL transparent mode data, if no acknowledgment is received during a confirmed transaction. Enter a number of attempts from 0 (no retries) to 15.
8. **Confirmed Mode Timeout** - Sets the time that the radio waits for an acknowledgment, before resending TOTAL transparent mode data during a confirmed transaction. Enter a time between 50 and 10000 milliseconds.
9. **Busy Response Back-Off Time** - Sets a delay before sending further data, if the receiving radio is busy communicating with a third party. For confirmed transactions, this time is in addition to the Confirmed Mode Timeout. Enter a time between 50 and 10000 milliseconds.

First Serial Number

The first production TM8100 mobile radio with Firmware v2.16 is Serial Number **TBD**.

Compliance Issues

None.

CSO Instruction

Inform all service staff and dealers of the released information.

3. Issuing Authority

Name and Position of Issuing Officer

Malcolm Brown
Senior Technical Support Engineer

Confidentiality

Distribution Level

Associate.

Document History

	Original Release	3rd July 2008	MJB
(b)	Update with an additional FW fixe, K5 band THSD.	4th July 2008	MJB