Technical Note TN-2631d-SR

TM9300 and TP9300 DMR Terminal Firmware v2.14.03
TM8200, TM9300, TP9300 Programming Application v2.14.3.1
Tx9000 Calibration Application v2.27.2.1

16 May 2017

This Technical Note applies to Cadence Release **DMR-1703**. Firmware v2.14.01.0081 and v2.14.02.0085 have been replaced in this Cadence with Firmware **v2.14.03.0088** for the TM9300 DMR mobile radios and TP9300 DMR portable radios and is supported by:

- TM8200/TM9300/TP9300 Programming Application **v2.14.3.1** (or later)
- Tx9000 Calibration Application **v2.27.2.1** (or later)
- Enable Fleet Version **v3.3** (or later)

New Features

- PABX/PSTN calls were previously only supported on Tier 3 networks. In this release, they are also available on a Tier 2 network
    - Users can initiate and receive individual calls from a PSTN/PABX line, via either the address book or dialing using the keypad mic. They can also end an individual call
    - A radio user can receive group calls involving a PSTN/PABX line and other radio users, however during that group call a radio user only receives audio from the PSTN/PABX line and not from the other radio users. The user on the PSTN/PABX line can receive audio from any radio user involved in the group call
- Service Cloud 33156: DMR standards based Trunked dialing scheme is now supported. This is specified in Annex E of the TS 102 361-4 v1.8.1 DMR specification. From the dropdown options in Trunked > Fleet Identity > Dialing Scheme choose ‘DMR’
- Service Cloud 32333, 33077: **Data Steering** provides a way to control which channel or slot will be used for data transmissions – such as location reports. It can be configured on a per channel basis on the Channels > Advanced tab once a ‘Report Trigger Profile’ is defined on the Basic Settings > Basic Network Settings tab.

  If configured, when a radio is polled for a location update on its current channel/slot, the polled radio responds on the configured data steering channel. This may be configured as the other slot of the current channel or another channel/slot. Once it has responded it returns to the original channel/slot.

  If configured, when a periodic radio location update or other vehicle stimulus initiates a location report, the radio will transmit the location on the channel specified by data steering configuration for the current channel. The radio moves to the channel/slot configured and sends its update then returns to the previous channel/slot

- Service Cloud 35094: **TM9315 'Missed Call'** callback feature in trunked DMR Tier 3 and MPT1327 modes. The feature allows the TM9315 user to be notified of the last received individual call that was unanswered. When this has occurred, the 2-digit display will continuously cycle between displaying "– –" (indicating that there has been a missed call) and the ID of the calling radio, if available. A recurring chirp tone will also be sounded.
  To enable the callback feature on the TM9315, the PC App Trunked Features > Radio Calls > Call Options > Call Queuing option must be set to "Single Unanswered".
  Whilst the radio is in this state:
  - Pressing PTT will callback the applicable radio. If the call is successful, the missed call indication will be cleared.
  - Pressing a 'Call Cleardown' function key will cause the missed call indication to be cleared, without making a callback.

Enhancements in Radio Firmware v2.14.01

- Service Cloud 35946: Remote Speaker Mic (RSM) enhancement improves detection of F5 long-press if the Speaker/Mic's PTT is pressed shortly after F5
- Service Cloud 35946: Enhancement to permit any Function keypress to be actioned even if another key is already pressed (refer to exception for RSM keys under 'Known Problems or Limitations' section)
- Service Cloud 35946: Enhancement to permit detection of a Function key if pressed and held during radio start-up; only applies if that Function key is programmed as 'Emergency'
- Service Cloud 30472, 30737: **Audio Level Enhancements**: Digital Transmit gain has been increased by approximately 10dB, and Receive gain has been decreased by 10dB. This is enabled by ticking the Global > UI Preferences > Audio 'Balanced Audio' tickbox. This provides a much better audio match to other DMR terminals in systems with mixed manufacturers. There's no need to modify Tait radios if the fleet is all Tait. Also enabled by default is 'Digital Mic AGC' tickbox which normalizes the average Microphone input volume.
  Note: Before deploying this Firmware version partners must review and test these programming parameters and ensure it is suitable for end-user's environment.
- Service Cloud 34152: Changing Trunked Zone or Workgroup during a call
  In conventional mode a user can change to a different zone or channel regardless of activity on the current channel. Previously in trunked modes if the radio was in a group call, the user had to first push LSK to exit the current call before the options to change zone, workgroup, or preset were available.
  If the scroll keys are configured to one of the 5 Zone or Workgroup options or the Preset Calls Menu option, then the scroll keys will now be displayed and active during group calls.
- Conventional missed call queuing now includes individual Selcall calls, and Status calls.
- Service Cloud 32343: In-Zone Scan Capability. The DMR radio now provides the capability to add an In-Zone scan group. This duplicates the implementation from the P25 platform

- JIRA-TRM-29910: From Firmware v2.14.01 onwards the TxAS104 “Extended Hunt List Capacity” SFE is no longer required to be purchased or enabled to expand the Normal Hunt List from 32 to 128. If this SFE is in existing radios no further action is required. If the user attempts to load a new TxAS104 SFE, the user will be presented with an error message, but this is only because the software no longer accepts this SFE key
- The ‘Set Zone’ and ‘Set Workgroup’ menu options are now visible during group calls. When one of the above options is used to select a new zone, workgroup or preset, any group call currently in progress will be automatically exited before the setting is changed or the new call is made.
  Note that the Zone, Workgroup, and Presets LSK options are not available during a call because LSK is labelled “Clear” and clears down the call.
- If there are entries in the call queue, then the existing behavior was that when the radio is not in a call, the scroll keys scrolled the call queue rather than performing the default scroll key option of (e.g.: changing workgroup or zone) etc. If the radio is in a call the scroll keys will now perform their default action (e.g.: exit the current call and change workgroup).
- The ‘Toggle Homegroup’ and ‘Goto Homegroup’ functions can now be actioned during group calls and exit the call before changing the Zone or Workgroup.
- Service Cloud 33660: Audible indicator settings controls have been consolidated and moved to Global Features > UI Preferences > Audible Indicators and expanded to allow customization of each indicator:
  - Each audible indicator can now have individual ‘High’ and/or ‘Low’ audio levels defined, or left with the global default levels
  - ‘Confidence tones’ have been renamed ‘Keypress tones’
  - The two audible indicators in the ‘Keypress tones’ category – Valid Keypress and Invalid Keypress’ are now the only tones toggled by ‘Keypress Tones Toggle’ Function Key or Menu operations
  - Three audible indicators: ‘Rekey Success’, ‘Rekey Failed’ and ‘Proceed To Talk’ have been removed from this category now have tone levels toggled along with the rest of the tones by the ‘Indicators Level’ Function Key operation
  - A new, generic ‘Invalid Tone’ has been introduced for invalid operations that are not keypress related
- Service Cloud 33160: The TP9300’s fitted with a 3-Way Selector will now support Keypad Lock as a ‘3-Way Selector Assignment’ on the Conv Key Settings > Portable Settings tab
- Service Cloud 33186: The TP9310’s fitted with a 3-Way Selector will now support Zones as a ‘3-Way Selector Assignment’ on the Conv Key Settings > Portable Settings tab. This provides the ability to program up to 48 channels across the 3 zones

Problems Fixed in Radio Firmware v2.14.01

- Service Cloud 34859: Improved battery drop test performance. If a TP9300 or TP9400 portable was banged onto a hard surface whilst it was transmitting, the battery protection would trip and stop the transmitter until PTT was re-keyed. The transmit RF power will now automatically resume
- JIRA-TRM-30879: Correction to K5 (800MHz) bottom-of-band frequency to prevent unsolicited radio reset at the end of a Band Scan.
- Service Cloud 34394: Selcall Auto Acknowledge was not working with v2.10.01 or v2.12.03 Firmware
- The Workgroup voice annunciation was missing if user changed workgroups via the selectors
- IP Inform was used every time that the radio registered which was unnecessary.
  The radio now only sends this on either its first registration, after being on a fallback site, after a mode change, after a network change or after moving site from MPT to DMR.
- Service Cloud 34276, 36327: Voice Annunciations are now supported on the Entry Level TM9315 mobile
- Service Cloud 34158: Generation of the 'Repeater Access Tone Tx' no longer locks-up the keypad or the display
- Service Cloud 32825, 32893: Fixed the Address Book 'Scroll' showing 'No items in list'
- Service Cloud 35232: If a user switched from a Talkgroup using Toggle Homegroup and then sent a Callback request – this would actually be for the previous Talkgroup not the now focused Homegroup. The Callback request will now be sent for whichever Talkgroup is currently displayed
- Service Cloud 35476: Any unsolicited CCDI output should be followed by a prompt. This was not occurring with Embedded GPS Reporting using TMAS107
- Service Cloud 35101: Resolved the issue where radios might reset if a blank Address Book entry was pulled up from the radio menu during a call

Problem Fixed in Radio Firmware v2.14.02

- Remedy INC 8967: Fixed an issue where disabling tickboxes for some audible alerts for Call Setup and Cleardown tones on the Trunked Alerts > Audible Alerts page were not being honored.
  Terminals already shipped or upgraded to v2.14.01 requiring this functionality should be upgraded to Firmware v2.14.03 (or later)

Problem Fixed in Radio Firmware v2.14.03

- Remedy INC 10169: Fixed the issue where the T02-00076-AAAA Entry Level 2-digit Control Head (TM9315) would no longer properly adjust to full Rx volume levels. This does not affect any of the high tier Graphical Control Heads. Extra tests have now been added for Minimum, Middle and Full Rx volumes across all control heads for Firmware releases.
  NOTE: TM9315 radios already shipped with, or upgraded to v2.14.01 or v2.14.02 should be upgraded to **v2.14.03** (or later)

Known Problems or Limitations in Firmware v2.14

- Service Cloud 35946: Emergency (using F5) doesn't activate if the Remote Speaker/Mic's PTT is already pressed.
- TIMS 108038: Radio Unit Monitor 'R.U.M' session ends automatically on a receiving radio after PTT is pressed on a transmitting radio
- TIMS 108040: Red LED doesn't light if the user presses PTT on a radio during active R.U.M.
- TIMS 107866: After any R.U.M interruptions, radio cannot setup a call by pressing PTT, or changing channels. Radio cannot recover from the failure unless reset
- TIMS 108275: Sending status message on DMR Tier 2 will fail if the status is sent the same time a beacon is received. The user is notified that the message failed, and to retry
- JIRA-TRM-29520: The Trunked Features > Fleet Settings > Fleet Parameters > Emergency 'Emergency Call Time Limit' is supposed to set the maximum length of a non-SOS emergency call if the Trunked Features > Fleet Settings > Fleet Parameters 'Ignore TSC Call Time Limit' option is selected, otherwise the call time limits specified by the node should be applied.
  This works for DMR Tier-3, but for MPT1327 the 'Emergency Call Time Limit' is always applied regardless of the 'Ignore TSC Call Time Limit' setting
- TIMS 108166: Long workgroup names cannot be seen in full on the radio display
- TIMS 108886: There is a missed call acknowledgement versus scan conflict with both using the green LED the same way on the Entry Level TP9310/TM9315 models

Problems Fixed and Enhancements in PC App v2.14.3.1

- Service Cloud 33206: The PC App now provides the option to set TM9300 EPTT Audio Tap-In to 'T12 > H - Combine 0dB'
- Increased the validation for Limited 3-way in combination with Limited 16-way selectors
- Cross-network assignment is now persisted correctly
- Service Cloud 33319, 33185: Workgroup UI startup zone default was invalid
- Incorrect error message when setting emergency cycling and callouts to "Disabled" on a conventional channel
- External alerts were able to be configured on the portable when they are not applicable

- Service Cloud 34874: The TM9300 was starting up on an incorrect Workgroup
- Service Cloud 35054: Channel editing was not possible when In-Zone scanning selected
- Service Cloud 34954: Updated the PC App Online Help text on BCD Selection use
- Tait PC Applications require Microsoft [.NET] Framework Client Profile version 4. If windows update has not updated the signing certificates then installing the HASP drivers may fail. If this happens then turn off User Account Control and the install should pass.

Problems Fixed and Enhancements in Calibration App v2.27.2.1

- JIRA-TRM-29313: The default TCXO/VCXO etc. values for B1-band VHF TM/TP9100 radios written by the previous Calibration App versions were incorrect and would force some radios to start-up beyond acceptable boundaries with the result being a displayed “Cal Torso ID 00” error and leaving the radios unusable. Tx9000 Cal App v2.27.2.1 has corrected these values and can also be used to read and write to any B1-band radio previously left in this situation.
- JIRA-APP-10274: Noted by Development that the factory has been using H5-band (400-470MHz) limits for TP9100 H4 (380-420MHz) radios. This hadn’t been reported from customers but if a calibration was attempted the Cal App would crash. The test frequencies had been set correctly but not the min/max frequency limits. This will now be corrected when a TP9100 H4-band radio is read with Cal App v2.27.2.1 (or later)
- JIRA-APP-10875: Updated the DMR K5-band to support 700MHz A-block frequencies. K5-band now encompasses 757-870MHz (Rx 757-776 and 850-870MHz)

Upgrading Calibration Applications

When DMR-1608 was first released it included Cal App v2.27.0.42, however issues came to light with EnableFleet requiring an updated Cal App build and so the following is suggested:

- If Tx9000 Cal App v2.26.0.29 (or older) is still installed:
  - Install Tx9000 Cal App v2.27.2.1 as a normal upgrade
- If Tx9000 Cal App v2.27.0.42 is installed:
  - Remove this first using the Windows PC’s Control Panel > Programs and Features > Uninstall operation
  - Install Tx9000 Cal App v2.27.2.1

First Serial Numbers

TM9300 Mobile Firmware v2.14.01	S/N **20449638**
TP9300 Portable Firmware v2.14.01	S/N **25878299**

First Serial Numbers

TM9300 Mobile Firmware v2.14.03	S/N (TBA)
TP9300 Portable Firmware v2.14.03	S/N (TBA)

Publication Information

Related Documentation	TN-2569-SR – DMR Firmware v2.12.03 (DMR-1608) TN-2510 – Windows10 HASP Driver Compatibility
Compliance Issues	None.
Compatibility Issues	None.
CSO Instruction	Inform all service staff and dealers of the released information.
Confidentiality	Confidential – This message or document contains proprietary information intended only for the person(s) or organization(s) to whom it is addressed. All recipients are legally obliged to not disclose Tait technological or business information to any persons or organizations without the written permission of Tait.
Distribution Level	Associate.

Document History	**Issue**	**Date**	**Description**	**Author**
	-	12 April 2017	Initial Release	L. Clark
	b	1 May 2017	First Serial Numbers FW v2.14.01	G Brenchley
	c	8 May 2017	Fix for Call Tones in FW v2.14.02	G Brenchley
	d	16 May 2017	Fix for low Rx volume on 2-digit Control Heads in FW v2.14.03	G Brenchley