


UTAH COMMUNICATIONS AUTHORITY

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KEEPING PUBLIC SAFETY CONNECTED

UCA Chat - Radio Troubleshooting Tips 12-19-2024

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Radio Troubleshooting Tips

IMPORTANT Many of the issues that have been reported post cutover have been directly related to outdated radio firmware. Please update radio firmware before attempting the troubleshooting steps below.

Slide 3 contains instructions on how to determine your radio's firmware version
Slides 4-5 contains instructions on how to update your radio's firmware version

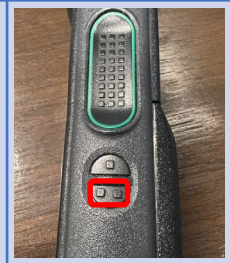
Symptom(s)	Troubleshooting Steps
1. Radio will not transmit or receive in a location that you expect it should and where there is good signal strength.	1. Verify that the signal level where you are located is sufficient to transmit. See slide 6 on how to determine whether that is the case. 2. Switch to a statewide channel like OQ_CALL, SW_CALL and see if the problem still occurs. A. If the radio works **consistently** after switching channels, the channel you were first attempting to talk on is likely not allowed on the radio sites in the area where you are trying to operate. B. If you believe this is in error, contact UCA at (801)840-4216 and report the issue as a "Coverage Class Issue" Please be prepared to answer the following questions: Reporting agency, POC, Talk Group, GPS Location/Street Address/Mile Marker, In building/Out building, Site that the radio is attached to, Receive Signal Strength, Make/Model of radio, Firmware version, Description of issue
1. Radio will not transmit or receive, and the signal strength is poor.	1. If you believe there should be p25 coverage where you are located, contact UCA at (801)840-4216 and report the issue as a "Missing Coverage" issue . Please be prepared to answer the following questions: Reporting agency, POC, Talk Group, GPS Location/Street Address/Mile Marker, In building/Out building, Site that the radio is attached to, Receive Signal Strength, Make/Model of radio, Firmware version, Description of issue
1. Radio randomly misses the front part of a long transmission from dispatch or misses a short transmission from dispatch altogether. 2. You have two radios in the same location. One radio receives transmission from dispatch while another randomly does not (applies to mobiles or portables)	1. Disable channel scanning and test again A. If disabling channel scanning fixes the issue, then report the issue to UCA or the agency that programs your radios as a "scan hang timer programming issue" 2. Update your radio firmware to the latest version and test again. A. If the problem is still occurring, it is possible that dispatch is Keying but not waiting for the system to start transmitting and therefore cutting off their transmission. B. If the problem is still occurring please report the issue to UCA at (801)840-4216.

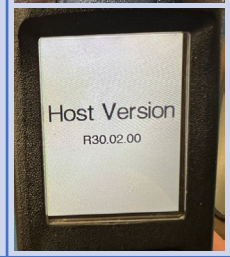
Symptom(s)	Troubleshooting Steps
1. Radio will not allow you to key up (transmit) and issues a deny tone (Long Medium Tone, boooooooonk) sometimes and other times will work properly. Radio is often able to transmit properly on one channel but not another.	1. Someone else could be talking on the channel you are trying to talk on, wait for them to finish and try again. 2. Verify that the signal level where you are located is sufficient to transmit. See slide 7 on how to determine whether that is the case. **3.** ***IMPORTANT***Please update your radio firmware to the latest version and test thoroughly. For instructions on how to view/update versions firmware see slide 3 A. If updating radio firmware does not solve the problem, then report the issue to UCA or the agency that programs your radios as a “TDMA control channel programming issue”. Please be prepared to answer the following questions: Reporting agency, POC, Talk Group, GPS Location/Street Address/Mile Marker, In building/Out building, Site that the radio is attached to, Receive Signal Strength, Make/Model of radio, Firmware version, Description of issue
1. Radio says invalid ID on the screen and will not associate with the system, the radio will not transmit/receive	1. The radio in question likely missed the 2nd final cutover programming. Report the issue to UCA or the agency that programs your radios as a “radio not programmed at final cutover” issue. Please be prepared to answer the following questions: Number of radios that need programming
1. Radio generally has significantly less coverage than before cutover 2. Radio generally has low signal level and doesn’t transmit consistently	1. Determine signal on another similar (brand x portable for brand x portable, brand y mobile for brand y mobile) in the same location using the steps on slide 6. 2. If signal levels are vastly different on the two radios being compared, there is potential that the antenna attached to your radio is designed for the 800MHz public safety band and not the 700MHz public safety band. The UCA p25 system operates in the 769-775/799-805MHz band and requires an antenna that is tuned for those frequencies. You can lookup the make and model of your antenna to determine if it's designed for the p25 system frequencies.
1. Radio doesn’t work in a building where it previously did	1. Likely the Bi-directional Amplifier or Distributed Antenna System in the building will need to be updated to support the 700MHz Public Safety Band (769-775/799-805MHz). The FCC requires that anyone operating a BDA/DAS system register the unit with UCA. 2. For questions related to BDA/DAS systems, please contact Dan Dialogue at ddialogue@uca911.org

Finding radio firmware version

Motorola Portable

1. Power on radio
2. Within 3 seconds of powering the radio on, press the two dot button under the ptt button on the right side of the radio 5 times within the first 10 seconds of powering the radio on.
3. Record the “Host Version” number, this is the firmware version
4. Current version is 34.00, **older versions have proven to have issues communicating with the p25 radio system**



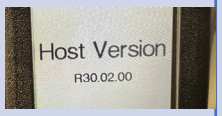


L3H Portable

1. Power on radio
2. Press the center key pad button
3. Arrow Right to Cog Icon
4. Arrow down to maintenance, press center keypad button
5. Arrow down to Radio Info, press center button
6. Record the number next to “Software:”, this is the firmware version
7. Current version is R17C05.0103, **older versions have proven to have software bugs that may affect a feature you use.**

Motorola Mobile

1. Power on radio
2. Within 3 seconds of powering the radio on, press the home button on the radio 5 times within the first 10 seconds of powering the radio on.
3. Record the “Host Version” number, this is the firmware version
4. Current version is 34.00, **older versions have proven to have issues communicating with the p25 radio system**



L3H Mobile

1. Power on radio
2. Press the center menu button
3. Arrow Right to Cog Icon
4. Arrow down to maintenance, press center button
5. Arrow down to Radio Info, press center button
6. Record the number next to “Software:”, this is the firmware version
7. Current version is R19C01.0312, **older versions have proven to have software bugs that may affect a feature you use.**

Updating Radio Firmware: Motorola

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Prep steps:

(https://youtu.be/C7Htu5nZXxs?si=tCzawMBU8So0bWQl)

1. Go to www.motorolasolutions.com
2. Login with your current account or create a new account
3. Upgrade your account to a business account.
4. Go to the resource center http://myview.motorolasolutions.com
5. Download the latest version of Motorola APX CPS (current is R34.00)
6. Download the latest Mega radio firmware bundle (current is current is R34.00)
7. Purchase a programming cable compatible with your radio.
    1. UCA has seen these low lead time cables work for cutover
        Portable: https://a.co/d/aAkIfd2
        Mobile: https://a.co/d/8YlEZwU
8. Charge radio battery and/or ensure stable power source.

Update steps:

(https://youtu.be/fAYFwxUFHko?si=e7RQgewLEFKdETEd&t=89)

1. Power on Radio
2. Connect Programming Cable
3. Listen for windows to detect the USB connection to the radio
4. Open Motorola APX CPS
5. Click on refresh radio on the left
6. Click Browse and select the firmware mega file you downloaded earlier.
7. Click Refresh Radio.
8. Do not unplug radio until CPS tells you to do so and **do not** power cycle radio until the process has fully completed on the radio.

Updating Radio Firmware: L3H

Prep steps:

1. Contact L3H at 800-528-7711 Opt. 3 to request the latest firmware file and RPM2 software for your radio
2. Purchase the appropriate cable and security dongle that work with your radio.
    - Deb Burton (L3H Sales Rep)
    - Deb.Burton@L3Harris.com
    - 385-556-5356
    - The security dongle must be shipped to UCA for verification steps prior to shipping to your location.
3. Charge radio battery and/or ensure stable power source.

Update steps:

1. Power-up the PC if not already on and start RPM2.
2. Ensure the radio is powered off.
3. Plug in the appropriate programming cable.
4. Turn radio on
5. If prompted with a **Found New Hardware** wizard, accept all prompts to allow the installation of the USB driver software.
6. In RPM2, display the **Load Code** tab.
7. Select **Radio Firmware** from the Radio Code drop-down.
8. Browse to the file and click **Add**.
9. Do not unplug radio until RPM2 tells you to do so and **do not** power cycle radio until the process has fully completed on the radio.

Signal Strength and Site Number

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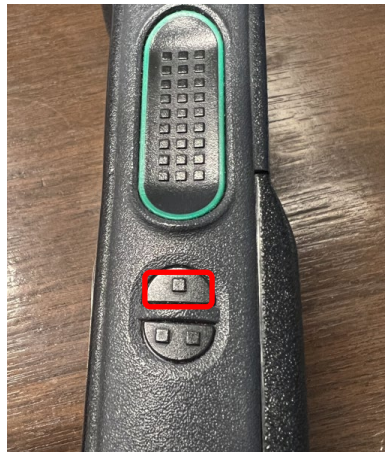
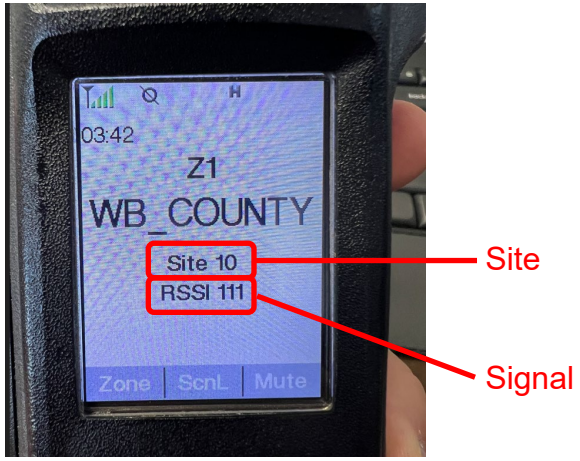
Motorola Portable

Press up Button

Site Number and Signal Strength (RSSI) will appear temporarily





L3H Portable

1. Press the center menu button
2. Arrow Right to once to “S” Icon
3. Arrow down to “site alias”, press center button
4. The site shown with the > symbol is the site your radio is attached to. The site number is formatted xx-xx
5. The signal level will be to the right of the site number