

# Transcript: Understanding Failed Transmissions

Welcome to this Alaska Land Mobile Radio training presentation, understanding failed transmissions.

The ALMR system is designed to be highly available and reliable for public safety users throughout the state. Failed transmissions from radios can occur for a number of different reasons. This training will review the cause of these failed transmissions and can help troubleshoot and resolve the issues.

A failed transmission has occurred when a user has pressed their push to talk button but is not able to communicate. When this occurs, most radios give an audible or visual indication or both when a transmission does not go through. Keep in mind that some radios are programmed to automatically retry transmissions after a period of time, if the first one has failed. Generally, this period is a few seconds later. Contact your agency to determine how this feature is programmed into your specific radio. Most failed transmissions are due to the inability of the radio to reach the tower or the ALMR site, the physical condition of the radio, or an issue with the radio programming.

If the ALMR site that your radio is affiliated with is at its capacity, you may not be able to transmit. This is referred to as a system busy. All ALMR sites have a certain number of channels that are allocated for voice traffic. For instance, if the ALMR site you are using has four voice channels, that means four different conversations can occur simultaneously on that site. When the 5th radio attempts to access the site, the transmission will fail due to the system being busy.

Although it is often perceived that system busies are the main cause of failed transmissions, in reality, they are extremely rare. As an example, in the month of June 2024, there were 856 busies throughout the system for that month. However, there were well over 1.5 million calls that occurred. As a percentage, this is an extremely low percentage of system busies and the sites and the system are managed to prevent as many busies as possible.

If you are experiencing issues that look like system busies repeatedly, be sure you check your site lock and your preferred site settings for your radio to ensure that it's not trying to access a site that is on a fringe or out of the area where your radio is located at.

The most common cause of a failed transmission is a blocked radio signal. Radio signals are line of site, which means your subscriber unit must be able to see the ALMR tower that you are affiliated with. If your radio is out of range, you will not be able to transmit. Again, check your site lock settings to ensure the radio is not trying to access an ALMR site that is out of range. You can check your receive strength by checking the received signal strength indicator or RSSI

indicator and site affiliation. This information will help you troubleshoot coverage issues and can be used by the ALMR help desk to diagnose individual issues. For more information on this process, see the reporting communication trouble training video on the ALMR website.

Local conditions are amongst the most common reasons that terrain or other signal blocks may occur in an area that is part of the ALMR system. If there is local terrain or some other condition, whether natural or man made, that may be blocking the path between your subscriber unit and the ALMR tower, you will see diminished signal strength and possible failed transmissions. Additionally, buildings can attenuate or reduce radio signal strength or block it altogether. Some buildings with certain thick construction hospitals and schools being common examples that may block signal. You may not be able to use portable radios inside these facilities. Keep in mind that Almar system coverage was designed for 95% mobile coverage. Mobile radios have additional power for transmitting signal to the ALMR sites. If you are unable to transmit using a portable radio, try using a mobile radio and see if you are able to communicate on that unit.

The physical condition of the radio can affect Alomar coverage. For all subscriber units, make sure that the unit is in good working order, especially making sure that any connections, especially those to antennas, are tight. The cables are in good condition and not worn or frayed, and mobile antennas are the right height, appropriate for the ALMR system. Keep in mind that radios are designed to transmit with a vertical antenna, often times holding radios in different orientations such as horizontally or being blocked by items such as duty belt or bunker gear may cause the ability for the signal to reach the radio to attenuate or weaken. Try and hold the radio and keep the radio in a vertical position for best results. Additionally, accessories can affect radio coverage. If you are having a problem with a radio disconnect, any remote speaker microphones or other accessories and test to see if the issue persists. This will allow you to troubleshoot if it's the radio itself, or the speaker or other accessory.

Keep in mind that during normal wear, both radios that are mobile are installed in vehicles or portable can go through physical changes.

Finally, errors in radio programming can cause failed transmissions. Suspect programming issues when your radio is not able to transmit at all, no matter where the radio is located. Intermittent issues may not be as likely to be programming issues as other local conditions.

When looking at code plug programming ensure the preferred sites are not programmed into your radio as these generally should not be used with ALMR . Be sure the system information and radio ID is correct as issued to you by the ALMR help desk. An incorrect radio ID or having duplicate radio IDs can result in the system not authorizing the radio properly. If the radio is not recognized by the ALMR system, it will not be allowed to transmit or receive. Make sure all programming information is accurate. Radio IDs and other information can be found on your inventory sheet or by contacting the ALMR helpdesk.

For additional assistance or to report system trouble, contact the ALMR helpdesk by e-mail or by phone.