RSSI Troubleshooting
AlarmNet GSM Devices

Environmental Considerations

Environmental surroundings can affect signal strength and quality. Acceptable signal strength can range from -94dBm to -20dBm. Unacceptable signal strength ranges from -120dBm to -95dBm. Below are things to consider when determining the cause of low or no signal strength.

Indoor Considerations

• What type of construction?
  - Commercial, Residential, Roof material
  - Exterior surface, Interior surface/studs
• What type of room is the device located in?
• How deep inside the structure is the room?
• What type of surface/wall is it mounted on?
  - Drywall, Concrete, Steel
• What types of devices are around the unit?
  - Wireless receiver
  - Metal panel box
  - Phone system server
  - AC Breaker box
  - High voltage AC wires – 220V or greater.

Outdoor Considerations

• Neighboring buildings, high-rise buildings
• Vegetation, such as trees
• Weather or atmospheric conditions

Troubleshooting Steps

1. If no signal strength is being shown, confirm that the SIM is activated via AlarmNet Direct-SIM Status.

2. Power cycle device.
   • Power down for at least 10 seconds, before re-powering.

3. Check current RSSI level on the device using the 7720P programmer.
   • Press (Shift) + {E} to display the GSM Status Display screen.
     - A minimum of -90dBm is required to register the device.
   • While looking at the GSM Status Display screen, check the following:
     - PriRSSI – Primary Radio Signal Strength
     - REG – SIM Registration Status
     S – Searching for network
Step-by-Step

N – Not Registered on a mobile network
H – Registered on the Home network
D – Registration Denied
R – Registered on a Roaming partner network
? – Unknown Registration State

4. Check coverage by street address using coverage maps lookup.
   • Coverage rating is considered from outdoors not indoors.
   • Coverage is shown from a marketing point of view. We recommend using the following definitions for troubleshooting?
     - Best = Good
     - Good = Moderate
     - Moderate = Poor
   • Use an antenna if necessary.
   • If no coverage is available, you may use another AlarmNet product.
     - AlarmNet I, A or M

5. Check to see if the device is reading the SIM Card ID (SCID).
   • Using a 7720P programmer, press {Shift} + {B} + {SPACE}; the SCID number will be shown, if the SIM is being read correctly. Confirm that the last 5 digits of the SCID number match the SCID shown on AlarmNet Direct.
   • If showing all question marks, such as, “?????” the SIM is not being read correctly.
   • If no programmer is available or if SCID was not read correctly; power the device down, and remove and re-install (reseat) the SIM. Confirm that the last 5 digits of the SCID number printed on the SIM match the SCID shown on AlarmNet Direct.
   • If the SCID Number does not match, contact AlarmNet Technical Support.

6. Is an external antenna being used?
   • Disconnect antenna wire from transmitter board; then take device outdoors and check for RSSI.
     - If the device shows signal strength with the antenna wire disconnected from the transmitter board, this indicates faulty connections going to external antenna.
   • Disconnect and carefully reconnect all antenna connections.

7. If the device still has no RSSI displayed:
   • Do you have another device or mobile phone?
     • USA – AT&T Service
     • Canada – Rogers Service
   • Test another activated device or mobile phone for signal strength.
   • Test the original device off site in known good mobile coverage area.

8. If the RSSI cannot be established by following all steps, contact AlarmNet Technical Support.