**Procedure: First-line Troubleshooting**

**It should always be recommended that the radios be tested on the bench prior to installing them in the field to ensure the configuration parameters are correct.**

Is the issue about a new system that is being installed? Or is it an existing application that failed?

If **existing**:

1. For how long has the system been working? Was it working satisfactory?

1. When did the issues start?

1. Did anything happen right before the issues started? (eg.: storm, lightning strike, power outage, etc.)
2. How did the customer become aware of the issue? (eg.: carrier led off? PLC messages failed?)

1. How often does the issue happen? (eg.: randomly, once a week, every 2 hours, etc)

If **new**:

Did the customer test the radios on the bench prior to installing them in the field and were there any problems?

Regardless of **a new or an existing installation**:

1. How many radios are in the system?

**What are the part numbers?**

1. What is the basic network topology (identify Master, Remotes, Remote/Repeaters and Repeaters)- Please supply a diagram sketch below.
2. Which radio/s is/are failing? (eg.: Remote #1, or the Master, or all the Remotes, etc)
3. What kinds of devices are connected to the radios? (PLC, HMI, SCADA computer, *include the brand and communication protocol being used).*
4. **For Ethernet applications only**: Do you have more than one piece of equipment connected to any of the radios via a switch?
   1. If so, to which radio?
   2. Please identify the devices and the switch brand/model. (The network topology with all the information should be supplied below).
5. Regardless of the type of radio, if PLCs are involved, how is the PLC programmed for data exchange?
   1. Are all the data exchange instructions (Messages) in the Master PLC?
   2. Or are these instructions at the remote PLCs?
   3. Or a mix of both?