

1.3. Setting communication mode

Proper communication between data loggers installed in production zones and a BaseStation (usually placed in an office) is imperative for the continuous transmission of data. In the case of the cellular Em50G data loggers, communication with Decagon's internet server is a must for their proper use. Using ECH2O Utility, the data loggers can be configured with appropriate communication modes.

For the radio enabled Em50R data logger, the desired radio communication mode, channel and sub channel must be selected. Of the available options, the "Confirmed Delivery Transmit" radio mode ensures the most complete data transfer and the best battery life (Decagon Devices, Inc. 2014). However, there may be instances when other radio modes are preferred depending on the existing situation. Please refer to the [Em50-Em50R-Em50G Operator's Manual](#) for detailed information on the radio modes available and their use. The channel and sub channel settings on data loggers and BaseStation has to be the same to enable their proper communication. The radio enabled nodes (such as Em50R) has a default channel and sub channel setting of 0, 0 (Figure 4). These settings can be changed in ECH2O Utility. If two or more BaseStations are going to be installed at one location, it is imperative that the BaseStations and nodes have differing channel and sub channel settings to avoid interference between them.

- Click on 'Configure' and select the communication mode, channel and sub channel desired

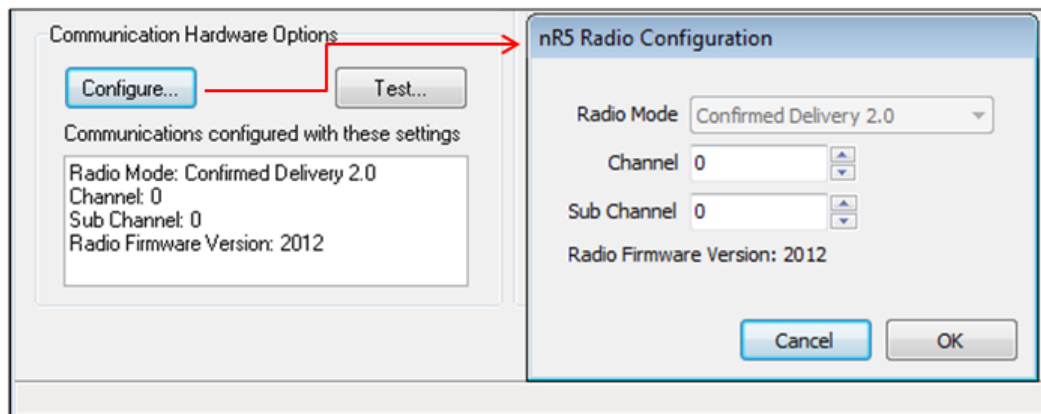


Figure 4. Communication mode, channel and sub channel are set for the node indicated.

Cellular communication for the Em50G data loggers is enabled using an activated subscriber identity module (SIM) card from a cellular network provider. Once communication with Decagon's internet server is established, upload times can be selected to send data collected to the internet server at intervals. Upload times selected should be limited to reduce battery consumption.

- Click on “Configure” and check the “Upload data to ECH2OData.com” box
- Select the data upload times desired.

The ECH2O Utility software also allows testing the telemetry/communication quality (Figure 5) between a data logger and BaseStation (Decagon’s internet server for Em50G nodes). This function is essential as it ensures data loggers deployed at a certain location in an operation are properly communicating with the BaseStation that may be sitting far away. Communication between Em50G nodes and Decagon’s internet server can also be tested in the same way.

- Click on the “Test” button to check telemetry between data logger and base station/internet server.

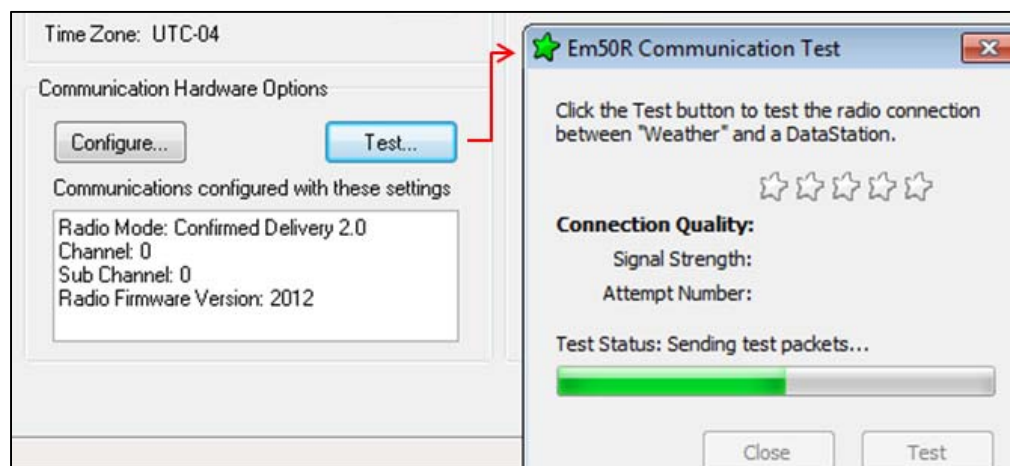


Figure 5. A communication test underway in ECH2O Utility.