XTEND-PKG RF MODEMS HARDWARE

For this model, the outdoor line-of-sight can be up to 40 miles. However, to figure out the best distance for any telemetry intended, we can install the software of this modem from the provider that is, X-CTU Software. Using this software, we can first determine the signal strength for a telemetry using the range test. From this range test, the best signal strength produced will determine the optimal range between the transmitter and receiver modem.

There will be two modems interacting. We will assign one modem as Radio1 (receiver) and another as Radio2 (transmitter). Radio1 will be connected to the computer using RS-232 through the USB port. Radio2 will be located at the monitoring site and connected with the sensor - in our case, the single beam water depth and temperature sonar.

Power Radio1 and Radio2 using their respective power supply. Nevertheless, since Radio1 is connected to the PC, it can be powered up using Bus power mode - the USB connection. Nonetheless, the power output is limited to 100mW. This XTEND-PKG RF MODEM utilize RPSMA antennas. These antennas block unauthorized connection in order to increase the range. Increasing transmitter power output or lowering the receiver sensitivity can also increase fade margin. Fade margin is the additional path loss over the median which lowers the systems' performance to unacceptable levels. Thus, power output should be lower while the receiver sensitivity should be increased. This modem has an adjustable power output from 100mW to 1W and it has outstanding receiver sensitivity of -110 dBm @9600 bps.