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The advantages of short pulses exist in this pseudo-random code. Pulse compression affords an increased energy content and hence, an increased range for a limited peak power. Ranges that can be expected from the system are 80-100 km for detailed work or close grid and up to 200 km for large grid programs, dependant on weather and other conditions affecting propagation. Network precision of SYLEDIS is +/- 5 metres out to ranges of 80-100 km, after which it degrades somewhat as the range increases. Optimum system performance is dependant on proper selection of station sites, antennas and network geometry. Station sites should be adjacent to the shore. Transmission over dense foliage will degrade signal strength thus reducing range and accuracy.

SYLEDIS works in a time sharing mode. Each beacon or mobile of a network, in turn, uses the same transmitting frequency and the same receiving frequency. One time slot lasts 5.33 milliseconds and there can be up to 30 slots. One of the transmitters must synchronise all the internal clocks of all other elements of the network. As they need not be accurate, the synchronisation pulse is a mere carrier with the same shape as the coded pulses. Such a time sharing system is very flexible. The sync. signal can be transmitted by any mobile or beacon according to the decision of the manager of the network. In the range/range mode of operation the SYLEDIS network can be utilised with 4 separate mobile units.

The SYLEDIS fixed station consists of a SYLEDIS beacon with power supply and antennae as required for ranges or pattern of the program (see illustration for SYLEDIS system). Mobile installation of SYLEDIS is an interrogator which consists of the transmission and receiving sections plus electronics providing readouts, data access and capability for setting calibration.