ATON MONITORING AND REMOTE CONTROL

AtoN monitoring refers to the action of observe, supervise or verify the operation of a Aids to Navigation System. This includes the state of the Aid, technical parameters indicating the health of the equipment, configuration parameters, failure alarms and other parameters.

AtoN remote control refers to the action of control or modify remotely the operation of a Aids to Navigation system. This includes the activation of the Aid, the use of reset command and the modification of the AtoN configuration or working parameters.

The typical operational goal of an Aid to Navigation (AtoN) is to provide a requisite availability of service and reduce as much as possible any down time. Availability is proportional to the Mean Time Between Failures (MTBF) and inversely proportional to the Mean Time to Repair (MTTR). The MTBF should be increased and MTTR should be reduced as far as possible.

The mariner always anticipates that the AtoN on their route will be operative. In the interests of safety, the mariner should be notified as soon as possible of any failures of AtoN. A maximum time delay before a navigational failure of an AtoN is detected needs to be defined.

The availability of an AtoN can be maintained by identifying faults which would result in an AtoN failure (if no remedial action is taken). AtoN availability can be affected by both the AtoN system and its ancillary equipment. Similarly, security, intruder and flood detection systems must be considered because of the threat such events may pose to the AtoN. The cost effectiveness of the AtoN service should be maximised with the provision of RCMS.

The typical objectives of a remote monitoring and control system may vary depending on priorities of the user, the characteristics of the AtoN and local conditions, but the following are somewhat common in any given system:

- **Provide information about AtoN network to the operator.**

- **Provide controls over AtoN network to the operator.**

- **Control and monitoring of system reliability, availability and cost.**

CHOOSING ATON MONITORING AND REMOTE CONTROL

When choosing a system for AtoN monitoring and remote control, the following factors must be considered:

1. **Parameters monitored**
2. **Coverage**
3. **Acquisition cost and fixed cost (if any).**
4. **Reliability**

To apply this parameters, we must consider the available communication systems nowadays, divided in:

- **UHF and other radio systems**

- **AIS system**

- **GSM and other cellular telephone systems**

- **IRIDIUM and other satellite communication systems**

- **WIFI and other public/private networks**