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Solveig Övrebö *SØ*

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Operational Description R60 for FCC and RED

Revision History

Rev	Date	Section	Description
A1	2020-04-02	All	New document
B1	2022-08-16	Section 1	Rephrased
		Section 5	Added

1 Introduction

The R60 operation concept can be described as four parts: front side, back side, inner part (electronics) and firmware. The front side contains the touch display and the power button; it is the user interface. The back side contains all power, data, Ethernet services and VHF/GPS connectors. The inner side contains all electronics for the functionality of the base station.

2 Front side

The front side is the user interface, containing the touch display and the power button. These two components are handled by the Power Board.

3 Back side

The back side is the entrance of the AC and DC inputs (primary and secondary inputs on the Power Board). It contains the Ethernet port service for Power Board and the Ethernet data port for AIS/ASM and VDE boards. It has several data ports which communicates AIS/ASM and VDE with an external host. These data ports are divided in two RS4SS, two RS232 and a 1-PPS Digital I/O connectors.
For RF signals, it contains a VHF and a GPS connectors used by AIS/ASM and VDE.

4 Inner part

The inner part is divided into various sections: AC/DC converter, Power Board, AIS/ASM Board and VD Board.

The Power Board is powered by the AC/DC output's (+24V) or by the secondary DC input. It selects one input and adjusts the power to +15VDCso it can be distributed to both AIS/ASM and VDE Boards. The Power Board handles the power button and the display. It is the only system in the base station to be always powered on. It has two different data

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connectors for AIS/ASM and VDE Boards which are used to communicate and exchange information with both boards.

The AIS/ASM Board is responsible for the radio communications of both AIS and ASM protocols, receiving and transmitting data to its peers. It is also responsible for the digital interface (RS4SS, RS232 and PPS Digital I/O) connectors and RF connectors, thereby handling messages and communications from both Power and VDE Boards.

5 Firmware

The R60 contains firmware. Accessible functionality is managed via license. See information below.

Functionality	R60 Versions			
	Rx	AtoN	Std.	Full
Transmission of all types of AIS messages and ASM messages	-	-	X	X
AIS Repeater Function	-	-	-	X
Reception of all types of AIS messages and ASM messages	X	X	X	X
Embedded Base Station Controller (BSC) including Ethernet connection	X	X	X	X
Transceiver using SDR technology	X	X	X	X
Embedded GNSS Receiver	X	X	X	X
Network access using both IPv4 and IPv6	X	X	X	X
Built-in web server for configuration and monitoring	X	X	X	X
SNMP support	X	X	X	X
Self Surveyed position support	X	X	X	X
Temperature Monitoring	X	X	X	X
Power Supply Monitoring and Control	X	X	X	X
Fault Detection and Handling	X	X	X	X
Digital Input and Output port	X	X	X	X
Remote Software Upgrade support	X	X	X	X
VSWR Monitoring	-	X	X	X
External RTCM input	-	-	-	X
Hot Standby Support	-	X	X	X
VHF TX Integrity monitoring (Hot Standby Installation Only)	-	-	-	X
Aids to Navigation Functionality (AtoN) msg 21	-	X	-	X
Local Storage of VDL and Status Data	X	-	-	X
DSC Channel Management	-	-	-	X
External UTC Synchronization	-	-	-	X
Third AIS Channel	-	-	-	X
Built-in NTP server	-	-	-	X
AMRD support	-	-	-	X
Long-range reception	-	X	-	X
VDES functionality (Rx or Rx+Tx) *	O	O	O	O