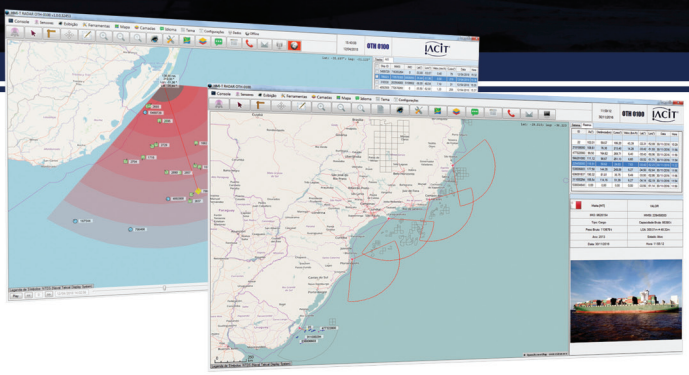
Over the Horizon Radar
OTH 0100

Surveillance radar of maritime surface areas beyond the horizon.

Site: Farol do Albardão RS Brasil



IACIT OTH 0100 Radar has the capacity to monitor ships up to 200 NM (Nautical Miles) away from the shore, exceeding the direct line of sight of conventional radars.

Its transmitting system uses a pulse-Doppler waveform with parameters set by software.

Using the floodlight radar concept, provides simultaneous coverage of 120° in azimuth.

The reception uses a circular shape array of vertical antennas, providing simultaneous coverage of the entire sector by multiple azimuth beams, digitally formed on a signal processor.

The circular antenna array ensures proper target detection while efficiently eliminating interference effects of ionospheric signals into the system.

IACIT OTH 0100 Radar has digital processing architecture, added to sophisticated software with Adaptative Digital Beam Forming (A-DBF) processing, which allows the suppression of different interferences which occur in the HF frequency band, such as man-made noise and communication interference, providing better detection and tracking of targets.

IACIT®

OTH 0100 Radar

General Characteristics	
Detection probability (Pd)	> 80%
Probability of false alarm (Pfa)	< 1x 10-5
Average detection accuracy	1,46 NM
Average heading accuracy	10%
Average speed accuracy	15%
Signal Processing	
Batch (Permanence)	100 s
Separation by DBF	1^0 (for radar configuration)
Probability of Detection and Start of Tracking	
Target fluctuation model	Case Swerling 1
Signal to Noise Ratio (SNR)	13 dB
Detection Performance	
Vessel length	Detection range
10m	100 NM
20m	150 NM
40m	200 NM
Surface Wave Attenuation	
3MHz	50km ~ 1dB; 350km ~ 22dB
4MHz	50km ~ 3dB; 350km ~ 25dB
5MHz	50km ~ 7dB; 350km ~ 55dB
Ionosphere Interference	
Interference range Ionosphere	100 - 400km
Transmitter	
Transmitter	Solid state
Frequency range	3 - 7MHz
Peak power	16 kW, min
Duty cycle	20% max
PRF	~1kHz
Maximum pulse width	1 msec
Spurious	-70dBc max
Input and output impedance	50 Ohm
Level of transmitted harmonics	30dBc
Instant bandwidth	LFM = 50kHz
Transmission modulation	LFM

Supply	
Primary voltage	220 VAC
Frequency	50 - 60 Hz
Emergency power (does not include transmit and receive modules)	4 hours of autonomy
Power Consumption (AC)	60kVA
Environmental Conditions	
Operating Temperature	$+10^0$ C to $+30^0$ C (Sheltter)
	-10^0 C to $+60^0$ C (External Environment)
Relative Humidity (External Environment)	Up to 95% for temperature -10^0 C to $+35^0$ C Up to 60% for temperature $+35^0$ C to $+50^0$ C
Cooling	Forced ventilation
Transmission Antenna	
Antenna	HF Log-Periodic
Frequency range	3 - 10 MHz
Polarization	Vertical
Beam width 3 dB in azimuth	120^0
Power rating	20 kW peak, 10 kW average
Gain	10 dBi (perfect terrain)
Rear lobe attenuation	-10 dB (rel. main beam)
Input impedance	50 Ohm
Ground plane	Copper wire radial
Reception	
Antenna set definition	Uniform Circular Arrangement (UCA)
Type of antenna element	Vertical Monopole
Number of elements	23
Diameter of UCA	148 m
Noise	
Noise Model	ITU-R P.372-9: Radio noise
Atmospheric Noise	LAT = 33.2 S
	LON = 52.7 O
Human interference	Considered rural/quiet

EED Empresa Estratégica de Defesa Strategic Defense Company
CMMI DEV /3 SM
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