PLANAR FLANK ARRAY SONAR
Passive Long Range Sonar

SUBMARINE WARFARE

Long range Passive Detection, Classification and Localization of silent targets, in deep and littoral waters.

PEDIGREE

Proven at sea with many NATO and non-NATO Navies, on new-built and upgrade programs (SSN, SSK, SSBN)

Brazil (4)
Chile (2)
French Navy (all submarine Classes, 6 systems at sea + 6 ordered)
India (6)
Malaysia (2)
Another Asian Navy operating in equatorial/tropical environment (4)
Another South-American Navy operating in Pacific Ocean conditions (2)

A large installed base to build on world-wide operational and training experience.

BENEFITS

• Long range Detection & Localization
  Taking full advantage of the physical aperture of the array (length x height).

• Excellent Bearing Resolution and Bearing Discrimination
  Owing to the wide aperture of the array and the use of the Adaptive Beamforming.

• Low sensitivity to Flow Noise
  Sustained performance proven at sea up to high operational speeds (> 15 Knots).

• Easy installation onboard, ideal for upgrades
  Only requires to weld rails on the hull. Use of bolted clamping bows to secure the panels.

• Easy Maintenance and low Life Cycle Cost
  Simple install/de-install procedures. High reliability enabling minimum maintenance.
PLANAR FLANK ARRAY SONAR

OPERATIONAL HIGHLIGHTS

TUS PFAS enables full use of the large available space on the flanks of the submarine to install acoustic arrays of maximum aperture (length x height). The use of Adaptive Beamforming provides a very efficient rejection of the own ship noise and flow noise, which increases detection and classification performances even at high operational speed. Excellent bearing resolution/discrimination also enable increased Target Motion Analysis performance.

A particular highlight of the TUS PFAS is its very reduced baffle which contributes to a large bearing coverage.

Flank arrays feature no manœuvrability constraints as compared to Clip-On Towed Arrays.

MAIN CHARACTERISTICS

**System features:**
- For any type of mono-hull submarine
- Modular design: number of array panels driven by the hull length
- Stand-Alone or fully integrated in a Sonar Suite

**Sub-system features**
- Fully proven at sea PVDF Acoustic sensor technology
- Ultra Thin Panels: Depth < 70 mm
- Extended bandwidth possible if required

TECHNICAL FEATURES

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical length</td>
<td>14m (48 panels)</td>
</tr>
<tr>
<td>Typical Bandwidth</td>
<td>100 – 3200 Hz</td>
</tr>
<tr>
<td>Bearing Discrimination</td>
<td>Better than 3° (sources with same SNR)</td>
</tr>
<tr>
<td>Bearing Accuracy</td>
<td>Better than 1°</td>
</tr>
<tr>
<td>BB processings</td>
<td>2 Simultaneous</td>
</tr>
<tr>
<td>NB processings</td>
<td>3 Simultaneous</td>
</tr>
<tr>
<td>Audio Beams</td>
<td>2</td>
</tr>
<tr>
<td>BB ADT channels</td>
<td>96</td>
</tr>
<tr>
<td>BB OIT channels</td>
<td>16</td>
</tr>
<tr>
<td>NB OIT channel</td>
<td>16</td>
</tr>
<tr>
<td>Track storage</td>
<td>3 hours</td>
</tr>
</tbody>
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