

The following table compares 406 MHz and 121.5 MHz beacons in these critical areas:

	<b>406 MHz Beacons</b>	<b>121.5 MHz Beacons</b>
<b>Coverage:</b>	Global	Ground station dependent; ground stations have an effective radius of about 1800 nm. Current coverage is about one-third of the world.
<b>Reliability; False Alerts/ False Alarms:</b>	<p>All alerts come from beacons. Satellite beacon transmissions are digital, coded signals. <b>Satellites process only coded data, other signals are rejected.</b></p> <p>About 1 in 10 alerts are actual distress.</p> <p><b>Beacon-unique coding/registration allow rapid incident corroboration. Registration mandatory 9/13/94. 90% beacons are registered. About 80% of false alarms are resolved by a phone or radio call to registration POCs prior to launching SAR assets.</b></p>	<p>Only about 1 in 5 alerts come from beacons. <b>Satellites cannot discern beacon signals from many non-beacon sources. Beacons transmit anonymously.</b></p> <p><b>Fewer than 3 in 1000 alerts and 3 in 100 composite alerts are actual distress.</b></p> <p>Since 121.5 MHz beacons transmit anonymously, the only way to ascertain the situation is to dispatch resources to investigate -- a costly disadvantage.</p>
<b>Alerting:</b>	<p><b>First alert confidence sufficient to warrant launch of SAR assets. Earlier launches put assets on scene earlier -- Average 2.5 hrs saved in maritime, 6 hrs in inland.</b></p> <p>Average initial detection/alerting by orbiting satellites is about 45 minutes -- worst case 60 minutes.</p> <p>Average subsequent satellite passes every 60 minutes.</p> <p><b>Vessel/aircraft ID, point of contact information provided with alerts allows rapid corroboration or stand-down.</b></p> <p>Allows false alarm follow-up to</p>	<p><b>High false alarm rate makes first-alert launch unfeasible.</b> Absent independent distress corroboration, RCCs must wait for additional alert information.</p> <p>Same as 406 MHz.</p> <p>Same as 406 MHz.</p> <p><b>Alerts are anonymous. 121.5 MHz technology not capable of transmitting data.</b></p> <p>No capability.</p>

continuously improve system integrity/reliability.

**Near instantaneous detection by geostationary satellites. System provides world-wide coverage.**

**No capability.**

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**Position Information:**

**1-3 nm (2-5 km) accuracy** on average. Position calculated by doppler shift analysis.

**12-16 nm (15-20 km) accuracy** on average. Position calculated by doppler shift analysis.

**100 yard accuracy with GPS-equipped beacon. GPS position processed with initial alert. System infrastructure now available.**

**No capability**

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**Locating the Target:**

**Superior alert (non-GPS) position accuracy limits initial search area to about 12.5 sq nm (20 sq km).**

**Initial position uncertainty results in 450 sq nm (700 sq km) search area on average.**

**GPS-equipped beacons reduce search area to a negligible area.**

**No GPS capability.**

121.5 MHz homing signal facilitates target location by radio direction finder equipped search units.

Same as 406 MHz.

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**Power Output:**

**5.0 Watts**

**0.1 Watt**

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**Average Cost:**

**\$750.00 - \$1000.00 (EPRIB)  
\$2500.00 (GPS-equipped EPIRB)  
\$2200.00 - \$3500.00 (ELT)**

**\$200.00 - \$500.00 (EPIRB)  
\$600.00 - \$1500.00 (ELT)**