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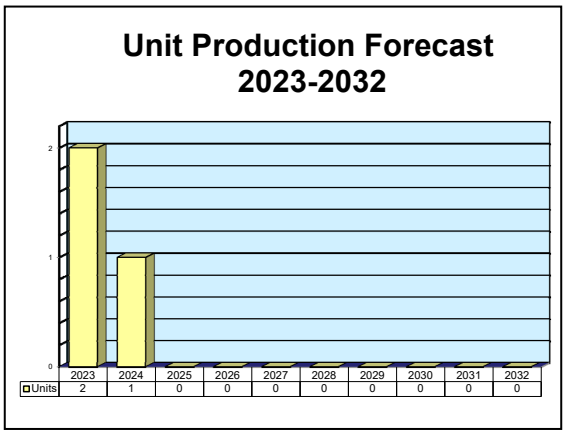
KLC-1

Outlook

- All forecast production is speculative
- With replacement platforms in the pipeline for the Chinese Navy, KLC-1 production is expected to end by the mid-2020s, if it has not already
- Potential sales targets include countries in Africa, Asia, Latin America, and, to a lesser extent, the Middle East



Orientation

Description. The KLC-1 is an I-/J-band (X-band), electronically scanned maritime surveillance radar optimized for anti-ship and anti-submarine duty as well as air awareness.

Sponsor

China Electronics Technology Corporation (CETC)
27 Wanshoulu
Haidian District
Beijing, 100846
China
Tel: + 86 10 6820 7376
Fax: + 86 10 8821 8354
Website: http://www.cetc.com.cn

Status. In service and production, ongoing support.

Application. The KLC-1 is designed for use on board naval helicopters.

Platform. Harbin Z-9C helicopter.

Price Range. The cost of the KLC-1 radar is unknown. However, based on the price of similar radars, a highly speculative unit price of $1.0 million to $1.5 million is estimated.

Contractors

Prime

China Electronics Technology Corporation, CETC	http://www.cetc.com.cn, 27 Wanshoulu, Haidian District, Beijing, China, Tel: + 86 1068207376, Fax: + 86 1088218354, Prime

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 75 Glen Road, Suite 302, Sandy Hook, CT 06482, USA; rich.pettibone@forecast1.com

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Technical Data

	Metric	U.S.
Characteristics		
Frequency	I-/J-band, 8 GHz-12.5 GHz	X-band
Resolution		
Azimuth @ ≤ 20m	3°	
Accuracy	≤ 1% RMS of range	
Azimuth	≤ 0.3° RMS	
Horizontal scan range	180°	
Range		
Anti-ship missile (Mach 0.9)	20 km	10.8 nm
Small targets	92 km	49.7 nm
Medium targets	118 km	63.7 nm
Large targets	140 km	75.6 nm

Design Features. The KLC-1 was designed for use in maritime surveillance on board naval helicopters. It can function in both surface search and over-the-horizon modes, providing data for aircraft and the helicopter's host ship. On board its primary platform, the Harbin Z-9C, the KLC-1 is stored within the helicopter's nosecone.

The KLC-1 flies exclusively on board the Harbin Z-9C helicopter.

Source: Public Domain

Variants/Upgrades

KLC-1. The only known model. Some sources state that the KLC-1 is a Chinese derivative of the French Agrion 15 radar.

Program Review

The KLC-1 was developed as part of a Chinese effort to provide maritime surveillance capability on board an indigenous naval helicopter. Development of the KLC-1 and its only platform, the Harbin Z-9C, is believed to have begun in 2003. The helicopter/radar combo was pursued as an alternative to the Russian-made KA-28.

Some analysts believe that the KLC-1 is derived from a reverse-engineered Thales Agrion 15 radar.

The modern Z-9C helicopter and its KLC-1 radar are deployed on board several Chinese Navy vessels, including the Type 54A frigate.

Pakistan Buy

In October 2005, Pakistan became the first international customer for the KLC-1. The radar was procured as part of a lot of six Z-9C helicopters.

The Pakistan Navy operates Z-9Cs, with the last unit thought to be delivered in 2010.

Bangladesh Buy

The second known international customer for the KLC-1 is Bangladesh. The Bangladesh Navy ordered two KLC-1 equipped Z-9Cs in June 2013.

Deliveries were to begin in 2014.

Contracts/Orders & Options

Contractor	Award ($ millions)	Date/Description
CETC	?	Oct 2005 – The Pakistan Navy ordered six KLC-1 equipped Harbin Z-9Cs.
CETC	?	Jun 2013 – The Bangladesh Navy ordered two KLC-1 equipped Z-9Cs.

Worldwide Distribution/Inventories

The **Chinese Navy** is the primary operator of the KLC-1. The **Bangladesh Navy**, **Pakistan Navy**, and **Venezuela Navy** are the only international customers believed to have ordered the KLC-1 equipped Z-9C. However, **Venezuela**'s order for eight Z-9Cs appears to have stalled or been canceled, with no known examples entering service.

Forecast Rationale

Little open source information is available about the KLC-1, either in domestic Chinese or international use. The radar's only platform, the Harbin Z-9C helicopter, sails on board the Chinese Navy's Type 54 and Type 54A frigates, alongside the competing Kamov Ka-28 helicopter. From this information, a limited yet educated forecast can be extrapolated for the radar's China-destined production. However, any forecast regarding the KLC-1's production for use in the Chinese Navy is still highly speculative.

Information on international use of the KLC-1 is slightly more reliable than information on its domestic use.

Countries in Southeast Asia, the Middle East, and Latin America compose the KLC-1's core potential market. These areas tend to have large enough military budgets to afford a specialty ASW system like the KLC-1 but not necessarily a top-shelf U.S. or European product.

Additionally, these limited market areas tend to be a focus for Chinese diplomatic/economic expansion. To win local favor, China is known to offer discounted equipment packages and will sometimes provide equipment as outright gifts.

To date, Bangladesh and Pakistan are known to have ordered the KLC-1. Venezuela is reported to have purchased the system as part of a procurement of Z-9Cs, but is not believed to have put the helicopters into service.

Additional international customers may emerge. The navies of China-aligned Asian countries are possible clients, as are strategic economic partners in Africa and U.S.-averse countries in Latin America and, to a lesser

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extent, Middle Eastern countries with an orientation away from Western partners.

However, one must bear in mind that ASW platforms are highly specific, niche products that are typically operated only by well-funded navies. With its customer pool comprising second- to third-tier militaries, only the most militarily oriented and relatively well funded would purchase a ship-based maritime surveillance / ASW rotorcraft. Additionally, the advancing age of the KLC-1's electronics technology when factored in combination with its limited customer pool equates to even slighter prospects for new sales.

With this information in mind, all forecast production is speculative. Additionally, the Chinese Navy is in the process of updating its ASW fleet, and new helicopters equipped with new electronics, such as the Z-20F, are planned to replace the legacy Z-9C. This means that production of the KLC-1 is likely to end soon, if it has not already.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program		High Confidence				Good Confidence			Speculative			
	Thru 2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Total
China Electronics Technology Corporation												
KLC-1 <> China <> Navy <> Z-9 Note: Speculative												
	59	2	1	0	0	0	0	0	0	0	0	3
Total	59	2	1	0	0	0	0	0	0	0	0	3