

CENTRE FOR JOINT WARFARE STUDIES



CENJOWS

RADAR TECHNOLOGY – ADVANCES BY CHINA

CHINA MILITARY RADARS

1. **Advancements in Military Radars in China.** The hardware on display at the three-day World Radar Expo in the eastern Chinese city of Nanjing, recently, included the long-range SLC-7, JY-26 and YLC-8E systems and has put the spotlight on its advanced radars, highlighting improvements in its ability to track US stealth aircraft¹.
2. China is developing even more advanced systems such as metric wave, quantum and laser radars to further improve Chinese military's tracking capabilities.
3. The SLC-7, developed by the Nanjing Research Institute of Electronics Technology, is a long-range surveillance radar that can detect and track multiple targets at the same time, withstand saturation attacks, adapt to jamming, and rapidly identify targets, according to the *Global Times*. The JY-26 is called the 'F-22 killer' and can also identify and track other stealth objects like the B-2 bomber and F-35 stealth fighter aircraft. The YLC-8E can detect and track aircraft more than 500km away as well as missile threats up to 700 km. The *Global Times* reported that the three systems were only a small portion of China's anti-stealth radar family.

¹Kristin Huang, *the Chinese advanced radars taking on stealth aircraft*, *South China Morning Post*, 23 April 2021, <https://www.scmp.com/news/china/military/article/3130844/chinese-advanced-radars-taking-stealth-aircraft>, 02 June 2021.



(China is developing a range of radar systems to better detect stealth aircraft. Photo: Weibo)

4. The expo, which ended on 24 April 2021, showcased both military and civilian equipment for aerospace, aviation, shipping and detection. Quite a few most advanced Chinese radars were also displayed in the 9th World Radar Expo at Nanjing, China, from April 22 to 24, including KLJ-7A fire control radar carried by fighter aircraft, SLC-2E artillery nemesis, SLC-7 three-dimensional early warning radar, YLC-8E anti-stealth early warning radar, YLC-18 low altitude defense radar, YLC-48 portable multi-functional reconnaissance radar nicknamed drone terminator, etc².

5. Among them, KLJ-7A is China's first active phase array fire control radar for fighter aircraft to be sold in world market. It is characterized by high degree of freedom, broad band-width and strong anti-jamming capability. It can easily generate various wave shapes to deal with different kinds of target, can, in addition, simultaneously counter source of interference at various directions. It is at par with similar best products in the world in view of its technological advancements. Its speed of overall response has been greatly increased due to the use of optical fiber for data transmission so that its capability to monitor far-away targets is twice better than traditional radar. KLJ-7A radar can track and guide missiles to hit quite a few targets at the same time. It has thus laid sound foundation for fighter aircraft to detect and destroy targets swiftly. SLC-2E radar is an S-band weapon position radar using entirely solid active phase array system, highly reliable, adaptable to environment and mobile and able to operate 24-hour in whatever weather. It can detect the position of not only mortars but also heavy artillery and rocket artillery with changing high-speed trajectory. In addition, it can detect the position of armed helicopters to better satisfy artillery's operational needs.

6. Way back in 2016 also similar claims were made where, China showed off two anti-stealth radars at Zhuhai. The first, the JY-27A 3-D long-range surveillance/guidance radar, a Very High Frequency (VHF) radar that, according to Shephard Media, was the Chinese military's first active-phased array radar. The radar was claimed to have picked up on hostile stealth fighters at ranges of up to 500km. Anti-stealth radar on display at

² ***Chankaiyee2, China's Brilliant Radars Displayed in Recent Nanjing Expo, Tiananmen's Tremendous Achievements, 28 April 2021, <https://tiananmenstremendousachievements.wordpress.com/>. 02 June 2021***

Zhuhai was the JY-26 Sky watcher-U. This radar worked in a broader bandwidth, in VHF and UHF bands. According to Shephard Media, it had a range of 500 km and could track up to 500 targets at once³.

7. Thus Chinese advanced military radars are likely to be capable of providing a good early warning to its air defence system and enable offensive action through multiple platforms quickly. Much of the technical information provided on these systems is from the Chinese sources which are known to have made tall claims in the past. Therefore, a continuous watch is required to be kept on these new technology weapon systems for exploiting their weakness when required.

³*Kyle Mizokami, China Claims Its New Anti-Stealth Radars Can Detect the F-22, Popular Mechanics, 11Nov 2016*
<https://www.popularmechanics.com/military/weapons/a23846/china-anti-stealth-radars-detect-f-22/>. 02 June 2021.