

## Samtel cockpit displays for Sukhoi-30MKI

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The Indian Air Force's Sukhoi-30MKI fighter is a beast that is tamed only by technology. The aircraft's giant AL-31FP turbofan engines, which allow manoeuvres that no other fighter can dream of, are monitored by its pilots on high-tech computer screens called multi-function displays, or MFDs. A quick glance across the MFDs also provides infor-

violent impacts of landing on aircraft carriers.

It has taken Samtel five years to develop the MFDs and have them certified as "airworthy", a mandatory evaluation for all military aviation systems, conducted by the DRDO's Centre for Military Airworthiness and Certification (CEMILAC).

This success could garner more. Samtel Display Systems has joined hands with HAL, the country's premier

ing a strategy of "obsolescence management". As CRT production lines close down across the world, Samtel continues to manufacture the CRT displays that remain fitted on many weapons platforms worldwide.

When Sony closed down its Trinitron CRT line, its customer, US avionics major Honeywell, came to Samtel for CRT displays. A Samtel company in Ulm, Germany — purchased from Thales — produces monochrome CRT tubes for users across NATO militaries. And the Samtel Thales JV will now produce and support the Mirage-2000 video display cards, which was hitherto being done by Thales.

Samtel's global strength in CRT comes from economy of scale and backward integration. It is the world's only display company that manufactures its own glass. A Samtel group company in Rajasthan just buys sand for making glass for its display tubes. Even as CRT lines shut down across the world, Samtel's CAGR remains 10-12 per cent, despite lowering its CRT prices 15 per cent annually. Meanwhile, Samtel Display Systems has launched an ambitious technological leapfrog into Organic Light Emitting Diodes, or OLEDs, next-generation displays that are far more visible than LCDs. So far available only in sizes below 2 inches, they are already being employed on mobile phone screens and gaming controls. "The OLED is the future of avionics displays," says Puneet Kaura, executive director, Samtel Display Systems. "We have established a Centre of Excellence in IIT Kanpur, where we develop OLEDs in partnership with IIT Kanpur and the Department of Science and Technology. Some 20-30 per cent of R&D costs are borne by Samtel."



The cockpit of the Sukhoi-30 fighter, showing the pilot's Multi-Function Displays. These will now be replaced by Samtel displays, manufactured in Ghaziabad

mation about on-board weapons and sensors, telling the pilots everything about how the aircraft is flying and fighting.

These avionics — or aviation electronics — are the most expensive part of a fighter, usually about 35 per cent of its overall cost. Superior avionics provide a combat edge, helping a pilot harness his engines, airframe, sensors and weapons towards victory in aerial duels.

This month, the Su-30MKI will reach a major avionics landmark when NCR-based Samtel Display Systems supplies indigenous MFDs for six Su-30MKIs.

So far, French giant Thales has supplied MFDs for the Su-30MKIs, which are manufactured by Hindustan Aeronautics Ltd in Nashik. Now Samtel Display Systems, a part of the Samtel Group, will supply these significantly cheaper than Thales.

Signalling its technological confidence, Samtel Display Systems has gone it alone in developing the Su-30MKI MFDs, despite having a JV with Thales. Starting with liquid crystal display (LCD) screens, commercially procured from Japan and Korea, Samtel has ruggedised them for use in military avionics. The display must be easily readable even in bright sunlight; it must be dim enough for the pilot to read at night without losing night vision; it must work at minus 40 degrees Centigrade when conventional LCD screens get frozen solid; and it must absorb the repeated

aircraft manufacturer, to form Samtel HAL Display Systems (SHDS), India's first public-private venture in defence avionics. SHDS aims to indigenise cockpit display systems across the range of aircraft being built by HAL.

But cracking this high-risk market is difficult, even with the main buyer — HAL — as a JV partner. In response to SHDS's offer to supply displays for HAL's Intermediate Jet Trainer (IJT) at a price significantly cheaper than the current foreign suppliers, HAL has said: first show us how you perform in supplying MFDs for the Su-30MKI.

Interestingly, Samtel has leaped into cutting edge avionics from a relatively low-tech springboard. In 1998 Samtel — then a major supplier of Cathode Ray Tube (CRT) television displays — blundered in moving towards plasma display technology, rather than the LCD displays that many rivals chose. With global TV manufacturing majors backing LCD screens, plasma has been relegated to a sideshow.

Currently, TV sales worldwide are 200 million a year. Of these, LCD TVs comprise 105 million pieces, plasma TVs a mere 8 million pieces and the balance are CRT-based sets, which sell mainly in India and China because they are cheaper and can work on batteries. In the medium term and beyond, however, even CRT will dry up as a revenue stream.

But Samtel intends to be the last man standing in the CRT market, embrac-

*To be continued  
(This is first of a two-part series on Indian  
avionics development)*