

# Spectrum of Change

## Required Italian radar modification should benefit air defense network

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Italy is overhauling a large swath of its air surveillance radar infrastructure so spectrum can be made available for commercial use.

All three military services are affected by the requirement to vacate parts of the S-band spectrum to make room for commercial WiMax (Worldwide Interoperability for Microwave Access) technology, which operates at around 3.5 GHz. WiMax is designed to be a more powerful form of wireless data transfer.

But the government also wants to take advantage of the big spending obligation to upgrade its military capacity. The new generation of systems promises to provide ballistic missile defense capabilities as well as improved performance against hard-to-spot targets.

The Italian air force has been the first to act, awarding a €260-million (\$335-million) contract to Selex Sistemi Integrati for 12 RAT-31DL air defense radars, due for delivery before 2015. The early warning systems have a range of 270 naut. mi. and can detect targets at altitudes up to 92,000 ft.

The large 39 X 30-ft. antenna—which can generate four simultaneous pencil beams at different frequencies—enables the system to detect ballistic missiles. While that capability is not in the baseline system, the air force is buying the option to ensure that the feature will be available to provide missile-impact-point prediction and to calculate the launch site. Turkey is another of the eight previous NATO customers to have made the same choice. The system includes countermeasures to reduce its exposure to anti-radar missiles.

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In Italy, the RAT-31DL replaces fixed RAT-31SL and will operate alongside the Raytheon HR3000 and Lockheed Martin AN/FPS-117 radars fielded in the 1980s and 1990s.

Air force officials say discussions are also underway with Selex for the purchase of two RAT-31 DL/M radars, which are deployable and could be used for overseas operations or to provide added protection for high-profile events within Italy. The DL/M version comes with a smaller antenna measuring 15 X 21 ft.; the downside is that the system has 20% less range performance.

The Italian navy also is pursuing radar modernization following its decision to field nine additional Selex RAN-21S 2D medium-range air detection systems. They are to be installed on a number of escort vessels, replacing RAN-10Ss.

The biggest spending item, however, is likely to be the army's modernization effort. The service is buying the Kronos 3D system, which is still at the prototype stage (it is the launch order for Selex's C-band system). Kronos 3D features a 6.5 X 2.8-ft. active phased array. It would be used to perform air surveillance and target detection tasks for the Skyguard Aspide point defense missile batteries. MBDA is also involved in this program.

The Italian defense ministry says the radar program budget is €450 million, including the necessary "backbone" such as command and control and support; buying only the radar would cost €410 million. Due to spending constraints, the government has slowed service introduction of the new system, so acquisition will not be completed until 2014.