

# RADAR RELIABILITY TESTING

The careful control and recording of reliability tests has proven vital for the development and testing of complex radar systems in China

The 14th Institute of the China Electronics Technology Group Corporation is the birthplace of China's radar industry. It has developed many pieces of high-end radar equipment and its products have been exported to dozens of countries and regions.

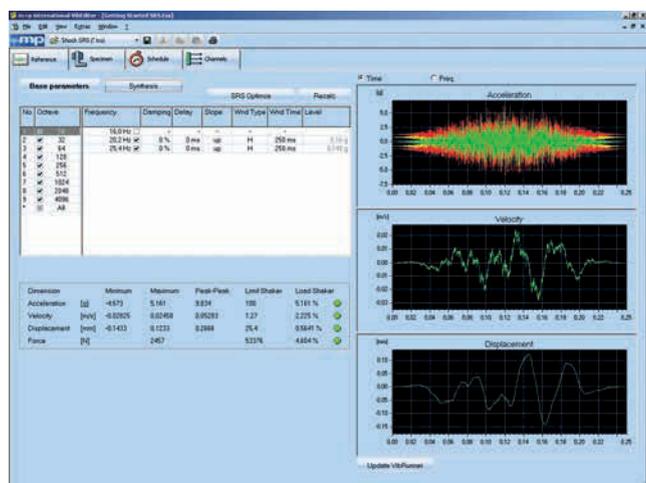
The 14th Institute has been using m+p international's industry accepted VibControl vibration control systems since 1996 to conduct sophisticated radar reliability tests.

Reliability is an important index of radar performance. It enables the effective verification of the design and is mandatory to ensure full performance of radar systems. Reliability tests can be used to detect faults. Engineers can also use performance tests, functional tests or environmental tests to find problems. These tests include random, sine, shock, sine dwell and the shock response spectrum. They determine the structural dynamic characteristics of the radar, such as the resonant frequency, expose design and manufacturing defects and verify functional integrity.

The vibration tests carried out on shakers and controlled by m+p VibControl systems therefore play a key role in reliability verification. The 14th Institute has more than 10 sets of m+p VibControl software with m+p VibPilot and m+p VibRunner acquisition hardware. m+p VibPilot is a compact, rugged 4/8-channel hardware platform. For higher channel counts, m+p VibRunner hardware is the first choice. It can be used as a desktop instrument or mounted into a 19in rack and supports distributed measurements. Equipped with 24-bit sigma-delta A/D converters and a sampling rate up to 204.8kHz, the m+p acquisition hardware allows for alias-

1 // The 14th Institute of the China Electronics Technology Group Corporation has developed several high-end radar systems for military use

2 // Safe vibration testing using m+p VibControl



protected measurements in a frequency range up to 80 kHz and with more than 120 dB spurious-free dynamic range.

Following its strategy of always striving to be a leader in the aerospace and defence testing sector, m+p international has integrated advanced control capabilities such as notching/force limiting into its VibControl software. Many safety features ensure reliable closed-loop vibration control – from pre-test checks to abort checking, notching

and controlled shutdown.

The radar's reliability level is constantly increased using these tests. Finally, the expected value of mean time between failures is reached and its operating cost is reduced.

In many radar reliability tests, m+p international's products played an important role. The responsible technical engineers of the 14th Institute expressed their satisfaction with the test results and gave a high evaluation of m+p international's products. \\

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