

GPS World: The Year of IIR–M: Five May Rise in 2007

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GPS IIR–M–2 PRN31/SVN52, the second replenishment modernized satellite, launched on September 25 and was set usable on October 12. A third, GPS IIR–16/M3 PRN15/SVN55, is scheduled to launch on November 14. Five more of this generation remain Earth–bound, at various stages along the line between Lockheed Martin's production facility and the U.S. Air Force storage barn.

An Air Force commander informally told GPS World that the GPS Wing has prepared a plan to boost all five of these into orbit next year. If all goes well, this would make 2007 the Year of IIR–M. Official confirmation of this plan had not appeared by press time for this issue. At one point, three or four IIR–Ms were to be launched in 2006; if current plans proceed unchecked, two will have risen.

If the second does follow the first, and if five further IIR–M launches take place next year, this would clear the launch pad for delivery of the first GPS Block IIF satellite in December 2007, and its currently scheduled launch in May 2008.

32 Skidoo. The Air Force issued a memorandum stating that the November launch will set a new mark of 31 operational satellites, assuming no satellites are decommissioned — and says it may even reach 32. The second IIR–M will continue dataless code on L2. Operational control could go beyond 32 satellites; as most current civil receivers are set at 31, this has important ramifications that manufacturers should consider.

The U.S. Air Force GPS Operations Center is seeking feedback on potential impacts the largest–ever GPS constellation may have on users and equipment. Interface specification IS–GPS–200D lists 32 operational pseudo–random noise (PRN) codes.

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"As we go over 30 operational satellites, our concern is with potential impacts to existing fielded GPS receivers that may not properly account for up to 32 operational PRNs," states the memo. The center asked users to assess potential effects on their systems and respond to the 50th Space Wing by October 20 — though indications were that feedback would also be evaluated after that date.

"Although future versions of our interface spec, IS–GPS–200, will accommodate a larger constellation for the next–generation GPS, the most pressing concern is with potential impacts to existing fielded GPS receivers that may not properly account for up to 32 operational PRNs," reads the memorandum. The encrypted Wide–Area GPS Enhancement (WAGE) message, used by the military, is specifically noted in the memorandum, as its users are likely to have a PRN limit of 30 in their implementation

The memo is signed by James C. Hutto, Jr., Colonel, USAF, Commander, 50th Space Wing, and Wesley A. Ballenger, Jr., Colonel, USAF, Commander, Global Positioning Systems Wing.

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