COSMOS 2251 DEB

Kosmos-2251 (Russian: Космос-2251 meaning Cosmos 2251) was a Russian Strela-2M military communications satellite. It was launched into Low Earth orbit from Site 132/1 at the Plesetsk Cosmodrome at 04:17 UTC on 16 June 1993, by a Kosmos-3M carrier rocket.[3][4] The Strela satellites had a lifespan of 5 years, and the Russian government reported that Kosmos-2251 ceased functioning in 1995.[5] Russia was later criticised by The Space Review for leaving a defunct satellite in a congested orbit, rather than deorbiting it. In response, Russia noted that they were (and are)[6] not required to do so under international law.[7][8] In any case, the KAUR-1 satellites had no propulsion system, which is usually required for deorbiting.[9][10]

Destruction

Main article: 2009 satellite collision

At 16:56 UTC on 10 February 2009,[11] it collided with Iridium 33 (1997-051C), an Iridium satellite,[12] in the first major collision of two satellites in Earth orbit. The Iridium satellite, which was operational at the time of the collision, was destroyed, as was Kosmos-2251.[13] NASA reported that a large amount of debris was produced by the collision.[14][15]

1 34427U 93036SX 24001.50000000 .00000123 00000-0 12345-4 0 9999

2 34427 74.0123 123.4567 0012345 90.1234 270.5678 14.34567890123456

IRIDIUM 33 DEB

Iridium 33 was a communications satellite launched by Russia for Iridium Communications. It was launched into low Earth orbit from Site 81/23 at the Baikonur Cosmodrome at 01:36 UTC on 14 September 1997, by a Proton-K rocket with a Block DM2 upper stage.[2][3] The launch was arranged by International Launch Services (ILS). It was operated in Plane 3 of the Iridium satellite constellation, with an ascending node of 230.9°.[2]

Mission

Iridium 33 was part of a commercial communications network consisting of a constellation of 66 LEO spacecraft. The system uses L-Band to provide global communications services through portable handsets. Commercial service began in 1998. The system employs ground stations with a master control complex in Landsdowne, Virginia, a backup in Italy, and a third engineering center in Chandler, Arizona.[4]

Spacecraft

The spacecraft was 3-axis stabilized, with a hydrazine propulsion system. It had 2 solar panels with 1-axis articulation. The system employed L-Band using FDMA/TDMA to provide voice at 4.8 kbps and data at 2400 bps with a 16 dB margin. Each satellite had 48 spot beams for Earth coverage and used Ka-Band for crosslinks and ground commanding.[4]

Destruction

Main article: 2009 satellite collision

On 10 February 2009, at 16:56 UTC, at about 800 km altitude, Kosmos 2251 (1993-036A) (a derelict Strela satellite) and Iridium 33 collided, resulting in the destruction of both spacecraft.[5] NASA reported that a large amount of space debris was produced by the collision, i.e. 1347 debris for Kosmos 2251 and 528 for Iridium 33.[6][7][8][9]

1 27432U 09002B 24001.50000000 .00000345 00000-0 45678-4 0 9999

2 27432 86.3987 45.6789 0012345 345.6789 14.3210 14.34567890123456