
Comsearch Performs Feasibility Study on High Altitude Platform Station (HAPS)


Dr. Saul A. Torrico, Principal Scientist of Comsearch, is jointly working with SkyTower and Telecommunication Systems in the feasibility of the High Altitude Platform Station (HAPS) system to frequency coexist with the terrestrial Fixed Wireless Systems. The study was presented in April 2003, at the International Telecommunications Union (ITU) ITU-R 49-S meeting in Geneva, Switzerland.

The HAPS system put forward by SkyTower/AeroVironment, in collaboration with the Japanese Ministry of Postal and Telecommunications (CRL/TAO) and NASA, has successfully completed several telecom tests in Kauai, Hawaii – the world's first commercial application transmitted from over 60000 feet (20km) in the stratosphere. The intention is

within two years to demonstrate this technology from the unmanned craft aloft over major cities in the United States. Twelve miles high, unmanned, solar-powered aircraft could provide telecommunications companies with a platform for delivering a host of wireless services for the next generation of mobile



NASA's Helios prototype flying wing used for the SkyTower tests.



devices. The system would establish a new, high-altitude wireless communications base, providing clearer transmissions by bringing satellite technology closer to Earth, but keeping it high enough to avoid interference. Also, the system will provide higher bandwidth, letting users videoconference with PDAs or download files from the Internet five times faster than cable modems or DSL connections—and all at a fraction of today's cost.

The two applications recently tested, HDTV and 3G mobile, validated the viability of SkyTower's unmanned HAPS for use by wireless service providers for a broad range of telecommunications applications. The tests were conducted from Pathfinder-Plus; an unmanned solar-electric aircraft developed by AeroVironment, Inc., the parent company of SkyTower. The 3G mobile tests demonstrated video telephony using an off-the-shelf NTT DoCoMo handset sold in Japan, and Internet surfing from wireless modem-equipped laptops at data speeds of up to 384 kbps.

The SkyTower platform connects users within its footprint of 30 to 600 miles in diameter to one or two gateway stations on the ground that can be tied directly into a central switch/fiber optic backbone. The HAPS platform flies in a tight turning radius at 60000 feet and appears geostationary from the ground. The platform's closer proximity to earth enables much higher frequency reuse than satellites, resulting in more than 1000 times the local access capacity compared to a geostationary satellite.