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Mitsubishi Electric Delivers World's First Helicopter Satellite Communication System

Transmits high-speed, real-time aerial video of disaster areas from helicopters

TOKYO, March 28, 2013 – Mitsubishi Electric Corporation (TOKYO: 6503) announced today that it has delivered the world's first helicopter satellite communication system (HSA40) to Japan's Fire and Disaster Management Agency (FDMA) through the Tokyo branch of the company's distributor, Seiryo Electric Company. The HSA40 system will begin operating in early April after airborne station is installed in helicopter of the Kyoto City Fire Department and base stations are installed in facilities both at the Kyoto City Fire Department in Kyoto and FDMA in Tokyo.

The system is expected to be used to gather information on disaster areas to support the rapid deployment of emergency-response measures. Currently, information is gathered with the so-called Heli-TV system, which transmits TV signals directly from a helicopter to a relay station on the ground. The conventional system can be prone to transmission disruptions due to mountains or buildings, and in many cases requires an operating relay station in the proximity of the disaster area.

Mitsubishi Electric's HSA40 helicopter satellite communication system transmits video and voice data from the helicopter to a satellite, enabling real-time information such as aerial video to be transmitted reliably to base stations from anywhere in Japan.

FDMA Helicopter with HSA40

Main features

1) Transmits aerial video of disaster areas to all parts of Japan

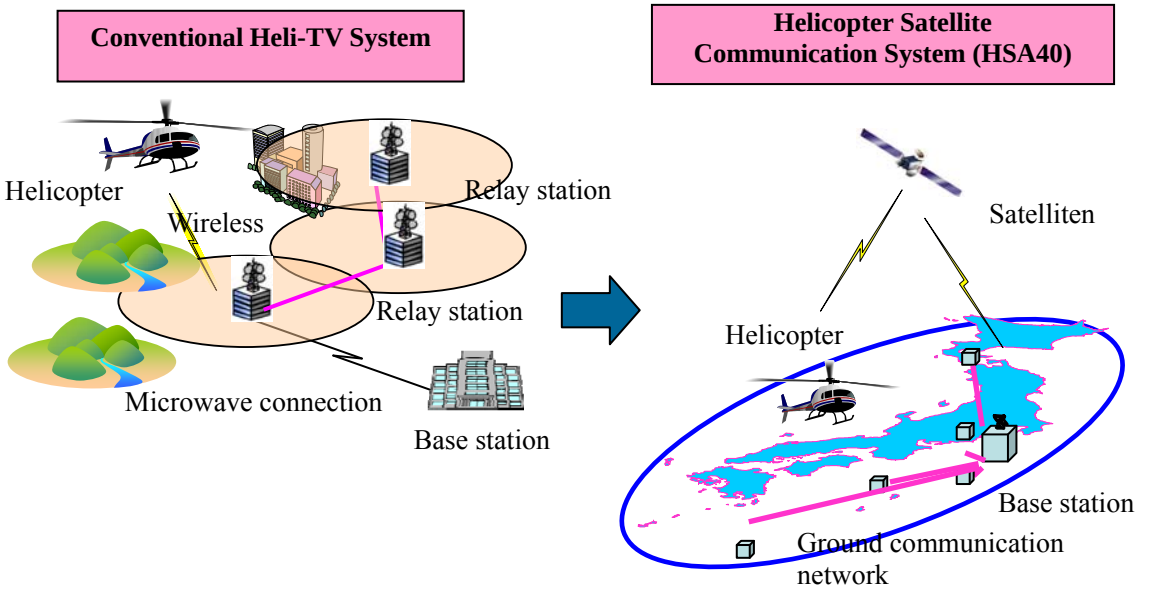
- Stable transmission of airborne video by intermittent transmission synchronized with blade rotation.
- No need for relay stations. Transmissions from helicopters to base stations can be sent from anywhere in Japan at the same time.
- Communication not affected by mountains or high buildings.

2) Transmits high-quality video and enables bi-directional voice and data communication

- Uses the newest image compression technology, H.264/MPEG-4 Advanced Video Coding, for real-time high-resolution images.
- Bi-directional voice and data communication between airborne and base stations.
- Retransmission of video and information via ground communication network or base stations.

3) Lightweight, power saving airborne equipment

- In-cabin equipment of airborne station weighs about 20kg and external equipment about 35kg, excluding camera equipment.
- Airborne station achieves low-power consumption, enabling operation via standard power source on helicopters.



Relay stations and their continual maintenance required.	Nationwide communication via satellite without relay stations.
Transmission can be disrupted by mountains or high buildings.	Satellite communication is unaffected by mountains or high buildings.

Antennas

Enlarged image of HSA40 antenna

Antenna inside the radome

Basic specifications

	Specifications
Frequency range	Transmit: 14.0 to 14.4GHz Receive: 12.25 to 12.75GHz
Function	Transmission of video images, bi-directional voice and data communication
Transceiving methods	Downlink (base station to airborne station): time diversity method Uplink (airborne station to base station): intermittent transmission synchronized with blade rotation
Antenna	0.4mφ parabola antenna, radome size 550φ × 600mm
Satellite tracking method	Scanning method by received signal strength
Transmission rates	Downlink (base station to helicopter airborne station): 16kbps Uplink (helicopter airborne station to base station): 384kbps to 10Mbps (maximum)
Helicopter operational requirements (standard)	Maximum flying speed: 160Kt, maximum altitude: 11,000ft Bank angle: ±30 degrees, pitch angle: ±20 degrees
Power requirements	DC28V (standard power source of helicopters)
Operating temperature range	External equipment: -25 to 50 degrees C, Internal equipment: 0 to 40 degrees C
Power consumption of airborne station	900VA or lower (helicopter airborne station)
Weight of airborne station	External equipment: approx. 35kg Internal equipment: approx. 20kg (helicopter airborne station)

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About Mitsubishi Electric

With over 90 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 3,639.4 billion yen (US$ 44.4 billion*) in the fiscal year ended March 31, 2012. For more information visit http://www.MitsubishiElectric.com

*At an exchange rate of 82 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2012