

# Microwave Application Products

## Main products

Microwave application products division covers the following products: terrestrial communications, satellite communications, and sensor modules.

In the terrestrial communications field, the broadband outdoor unit is the main product. The main product in the satellite communications field is the Ku band offering a diverse lineup, including C-band (5 to 6 GHz) to Ku-band (14 GHz) and Ka-band (30 GHz) transmitters. In the sensor module field, the X-band (10 GHz) Doppler sensor module is the main product, and efforts are also focused on the K-band (24 GHz) direct-oscillation type.

## [Business Results in Fiscal 2004]

Consolidated sales for this division were ¥4,209 million (37.3% up year-on-year), accounting for 6.5% of all sales. Markets are mostly and centered around North America.



NJT5035F is a new flagship model, 14GHz 1W output power transmitter for VSAT (Very Small Aperture Terminal) system of satellite communication, developed as generic product.

## • Terrestrial Communications Section

We have mass-produced an NTT model of “26-GHz point-to-multipoint Fixed Wireless Access (FWA) outdoor transceiver”, which we have developed in collaboration with Japan Radio Co., Ltd., over the last six years. This compact and inexpensive transceiver provides broadband communications through high-speed wireless access with collective housing and individual housing where broadband communications cannot be used due to operational environments, etc. Making broadband communications available by the transceiver will promote the introduction of IT into medical treatment and education in remote districts, and SOHO (Small Office Home Office) and personal-level business.

In fiscal 2005, we will address needs for wider bandwidth, reduced power consumption, and reduced cost, and focus on sales of 25-GHz low-output-power data communication equipment for expansion in Europe and North America.



This is a compact subscriber station unit for 25 GHz FWA (Fixed Wireless Access) developed as an OEM product.

Setup outside on a porch, etc., pointed at a base station enables a PC in house to access high-speed Internet services at the best-effort access speed of 80 Mbps.

## • Satellite communications Section

Sales of our new 4 W output Ku-band transmitter were good. This is because we succeeded in reducing the size and weight of the “Ku-band (14 GHz) outdoor transmitters” even with 4 W output, which was previously large-sized.

Starting in fiscal 2005, we will further development of high-output/high-efficiency products in addition to high-frequency (Ku to Ka) products.

- (1) Development of products with output higher than the existing lineups: 5 W and 10 W type transmitters in C band (5 to 6 GHz); 8 W transmitters in Ku band (14 GHz); products with higher output.
- (2) Small and inexpensive “Ku-band 1 W/2 W/3 W type transmitters” for end users (consumers)
- (3) Ka-band (30 GHz) transmitters for high-speed transmission



NJT5669 is a 5 to 6 GHz 5W output power transmitter, can be used to high speed and high capacity application for VSAT (Very Small Aperture Terminal) system of satellite communication, developed as generic product.

#### • Sensor Modules Section

Based on the core technology in our experienced sensor field, we started selling “K-band (24 GHz) direct-oscillation Doppler sensor” module using a dielectric resonator and FET in accordance with revision of the Radio Law. This sensor module is expected to be applied to various products, such as a security system for houses or vehicles, automatic doors, speed guns, and toys due to its capability to detect the motion of a human body or an object. From fiscal 2005, we will develop static detection sensors module (Standing Wave Radar Module) using motion detection technology. We also plan to develop products focused on the large auto market. Because we expect intrusion sensors for breaking into a car, collision avoidance sensors, etc., to be in the market in the future, we will collaborate with auto manufacturers and electrical equipment manufacturers. These microwave sensors are more reliable and suitable for integration than the optical sensor, which is susceptible to sunlight and black color obstacles, and will attract attention from various fields. We will be committed to “security & sensing” technology.

#### [General Overview]

In fiscal 2004, we emphasized improving product line-ups and developing high-performance products while focusing on market analysis. In addition to promoting higher performance, we will have to offer products for end users (consumers) including products for in-car applications with lower costs.



NJS8487 is a new downconverter, which can be covered at the range of 3 to 4 GHz frequency for VSAT (Very Small Aperture Terminal) system of satellite communication, developed as generic product.

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