

## **Yokowo Introduces "Divergent Antenna" Five-System, Multi-Band Internal Cellular Phone Antenna**

Yokowo Co., Ltd.  
7-5-11 Takinogawa,  
Kita-Ku Tokyo, Japan  
Tel : 03-3916-3111 (Rep.)

### ■ Summary

Yokowo Co., Ltd. has developed a high-performance, small-scale, multi-band internal cellular phone antenna referred to as a "Divergent Antenna." Distribution to cellular phone manufacturers worldwide began in December 2003.

### ■ Current Trends in the Cellular Phone Antenna Market

Global trends in the cellular phone antenna market show the majority of European market GSM/DCS hand sets turning to internal antennas. The PDC and cdma hand sets within the Japanese market, which primarily has used retractable antennas, are also moving towards internal antennas. Furthermore, W-CDMA technologies, expected to proliferate in the future, predominantly make use of internal antennas. And finally, both the Asian market, with mainly stubby antennas, and the North American market, with both retractable and stubby designs, are expected to adopt internal antenna technologies.

The inverted F antenna that comes with the GSM/DCS hand sets within the European market is the mainstream of the conventional internal antennas. However, handsets are continuing to change from "straight-bar" body designs to "clam shell" folding designs due to the advent of larger, color LCD panels for internet functions and on-board cameras. Such designs incidentally lead to a reduction in the circuit board surface area available for antenna mounting and cause an unavoidable degradation in the performance of the inverted F antenna. This degradation is particularly severe in the lower frequency 800 - 900 MHz band making the inverted F antenna use for GSM, PDC and cdma extremely difficult.

Additionally, inverted F antennas have a narrow bandwidth and cannot support wideband or multi-band reception, thereby hindering its compatibility with truly multi-band applications (e.g. AMPS / GSM / DCS / PCS / W-CDMA five-system solutions).

### ■ "Divergent Antenna" Overview

In response to the current antenna market's global needs, Yokowo Co., Ltd., has unveiled its new, patent-pending "Divergent Antenna," a high performance, small-scale, multi-band internal antenna, integrating Yokowo's proprietary meander antenna and band-switching technologies.



**Features:**

- 1) True multi-band capability. Designed for use over all five bands (AMPS, GSM, DCS, PCS and W-CDMA).
- 2) Full wideband compatibility throughout the 800 ~ 900 MHz bands for clamshell and other space-restricted body styles.
- 3) High degree of freedom in mounting location for clam shell type hand sets, including top of unit, hinge area, or bottom of unit .
- 4) A 40% size reduction over traditional inverted F antennas: 40 x 10 x 10 mm (4cc).
- 5) Wideband and multi-band capability while achieving equivalent electrical performance and better gain and VSWR characteristics than conventional inverted F antennas.
- 6) Antenna feed point equipped with Yokowo's spring connector. Provides stable current, one-touch installation and reduced surface mount area.

■ Yokowo's Initiatives

Yokowo is already receiving orders from three companies (two domestic Japanese companies as well as one overseas company) for these antennas. These antennas are being used domestically for the 800 ~ 900 MHz PDC and cdma bands with shipments beginning in December 2003. In the overseas market, Yokowo is leading the way in shipping the industry's first 4-band (AMPS / GSM / DCS / PCS) antenna.

Yokowo believes that internal antenna technology will rapidly grow worldwide. Accordingly, Yokowo is stepping up Divergent Antenna sales activities while aggressively pursuing the development of strategic, next-generation internal antenna technologies.

Enquiries about this new release to:

PCA Division

Overseas Sales Office

TEL.+81 03-3916-3117