

**NEWS RELEASE**

PR1805E

**ALPS Develops HMLSR Series of Licalloy™  
Magnetic Sheets for RFID Applications**

*Magnetic sheets utilizing Licalloy™ metallic glass powder to increase RFID antenna sensitivity*

Duesseldorf, Germany, October 06, 2005 – ALPS Electric has developed the HMLSR Series of Licalloy™ magnetic sheets for radio frequency identification (RFID) applications. The new magnetic sheets utilize ALPS' Licalloy™ metallic glass powder to boost the sensitivity of RFID antennas.

RFID has recently been gaining attention as a technology that stores data on a minute wireless tag to identify people or manage goods. In the distribution industry, for example, use of RFID to identify and manage products has begun as a technology to replace bar codes, which currently remain the primary technology for product identification and management. In recent years, non-contact power transmission technology has led to the appearance of wireless tags, which can be used semi-permanently without a battery, and with a variety of applications including pre-paid cards. RFID technology is drawing an increasing amount of attention as a leading force to drive the permeation of information technology (IT) throughout society.

ALPS developed this product as one that enhances electromagnetic compatibility (EMC), eliminating the problem of interference with waves that should reach the wireless tag from radio or electromagnetic waves generated by nearby parts and devices.

The sheet employs ALPS' proprietary Licalloy™, a metallic glass powder consisting primarily of iron. The amorphous structure of Licalloy™ allows a high degree of freedom in the

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shaping process, and it displays soft magnetic properties that can be readily activated by exposure to magnetic fields. In addition, its high permeability is 1.3 times greater than that of Fe-Al-Si alloys, the leading magnetic material, giving it superior capacity to absorb radio and electromagnetic waves. Our new sheets make full use of the freedom in shaping and the highly permeable characteristics of Licalloy™.

In RFID technology, it is not unusual to install parts and devices on the back of wireless tag antennas that send and receive data from the tag between devices. Under some conditions, this causes interference with waves that should reach the antenna. Our new sheets effectively focus waves to the antenna, increasing RFID antenna sensitivity.

## Features

ALPS' proprietary Licalloy™ metallic glass powder was utilized to develop magnetic sheets that improve the sensitivity of RFID antennas

1. Developed as a product to enhance electromagnetic compatibility
2. Effectively gathers waves through the high permeability of Licalloy™, contributing to improved sensitivity of RFID antennas.

## Principal applications

For improving sensitivity of RFID antennas

## Specifications

Product name	HMLSR Series
Dimensions (H × W)	150mm × 180mm (Standard) 180mm × 300mm (Maximum)
Thickness	0.05mm, 0.10mm, 0.20mm 0.50mm
Effective frequency range for control of EMC noise	13.56MHz
Operating temperature range	-40°C to +130°C
Surface resistance	$1.0 \times 10^6 \Omega$ (min)

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This news release and a press photo are available electronically at <http://www.presseagentur.com/ALPS/en/>



**ALPS Electric Co., Ltd.**

Since its establishment in 1948 ALPS has grown as a comprehensive manufacturer of electronic components. At present ALPS is creating innovative high-value-added products in its main business segments – Components, Magnetic Devices, Communications, Peripheral Products, and Automotive Electronics – which are contributing to the advance of a digital society. ALPS is a global company that carries out its operations with 23 production bases in 8 countries as well as 61 sales bases in 14 countries. Consolidated net sales in the year ended March 31, 2004 amounted to YEN 643 billion.

**ALPS Electric Europa GmbH**, a subsidiary of ALPS Electric Co., Ltd., was established in 1979. Since 1989 the European Head Office is located in Düsseldorf. A team of specialists is working here in Sales, Marketing, and Product Engineering. From Düsseldorf the activities of our branch offices in Munich, Paris, Milton Keynes and the European distribution are co-ordinated. ALPS Nordic AB, a 100 percent subsidiary of ALPS Electric Europa GmbH, located in Sweden, is servicing the Scandinavian market.

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