



DESCRIPCIÓN DE LA TECNOLOGÍA/TECHNOLOGY DESCRIPTION

Título / Title

Dual band printed antenna

Resumen / Abstract

The antenna has a dielectric substrate layer whose front side presents a patch antenna fed by a microstrip line stretch and whose back side presents an Earth reference. This patch has the shape of an isosceles triangle which connects one vertex to the stretch, while in parallel to the opposite side of the vertex, there is a slot in the patch operating like a filter. This enables a dual band operation wherein two resonant frequencies are controlled by the variation of the patch size and the slot length. The frequencies can be adjusted to values of 900 and 1800 MHz, facilitating the application of the antenna in dual mobile telephony with GSM and DCS-1800 systems. With this technological offer we try to collaborate with licence agreement and commercial agreement with technical assistance.

Descripción y características fundamentales / Description and special features

The invention consists of a dual band printed antenna planned to be implemented preferably in base stations of dual mobile telephony which use GSM and DCS-1800 systems, although other applications are not rejected.

Similarly to the well-known printed antennas, the invented antenna has a dielectric substrate layer whose front side presents a printed patch. This patch is fed by the conventional microstrip line technique that is why the front side presents a microstrip line stretch reaching the patch. The dielectric layer's backside presents an electric Earth reference. So far, this structure corresponds to the known as 'printed antennas'.

The new feature is that the radiating patch has the shape of an inverted isosceles triangle whose equal sides join vertex is linked to the feeding microstrip line, and whose side opposite the vertex is parallel to a slot made in the triangle. The slot operates like a spur-line filter and enables the antennas' dual operation in a small size and with an easy construction, making its manufacturing price considerably low.

With this configuration and just by adjusting triangle radiating patch size and the slot length, the two resonant frequencies for dual operation mode are controlled. If the antenna is used in base stations of dual mobile telephony with SDM and DCS-1800 systems, the two frequencies are set to 900 and 1800 MHz, which are the central frequencies of the bands used in those systems. A prototype with these frequencies has been experimentally obtained, which presents the adequate performance characteristics for its use in the base stations.

Optionally, the dielectric layer's backside can include a metallic strip that will facilitate the adjustment corresponding to the bandwidth.

The antenna's microstrip line and the Earth reference can be connected to a SMA connector in order to facilitate feeding. This Earth reference, according to a preferential performance, has the same length as the microstrip line. In other performances, this reference could be placed perpendicular to the radiating patch enabling an omnidirectional configuration of the antenna. Depending on different performances and the sought radiation patterns, the dielectric layer's backside could have a metallic plug joint to the Earth reference and/or a PTFE element (polytetrafluoroethylene, commonly known as Teflon). In that case, the PYFE element position has been planned to be either following the plug or between the plug and the Earth reference.

Origen de la Tecnología: Fuente de financiación / Financial source of the technology

Financiación privada / Private funding

Ventajas competitivas / Competitive advantages

Dual frequency operation

Low fabrication cost

Estado de la propiedad industrial e intelectual / Current state of intellectual property

x Patente concedida / Patent granted

Disciplinas científicas en las que se encuadra la tecnología / Scientific domains

x Tecnologías de la Información y Telecomunic. Fabric. industrial, tecnolog. materiales y transporte Otras tecnologías industriales Energía Ciencias físicas y exactas Ciencias biológicas	Agricultura y recursos marinos Industria de la Agroalimentación Medidas y estándares Medioambiente y prevención de riesgos Socioeconomía
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Grado de desarrollo de la tecnología / Current stage of development of the technology

Desarrollada, lista para demostración / Developed, available for demonstration

x En el mercado / Already on the market

Sectores empresariales de los potenciales clientes / Industrial sectors of the potential users

Communications

Información adicional / Additional informationPágina web: www.gimre.upct.es**Breve Perfil del Grupo de Investigación****Descriptor**

Electromagnetismo - Microondas - Antenas - Radiocomunicaciones - Comunicaciones móviles - Cálculo numérico - Tasa de absorción específica - Telecomunicación - Permitividad compleja - Compatibilidad electromagnética

Líneas de investigación

Diseño de estructuras radiantes para sistemas de telecomunicación

Diseño y fabricación de circuitos de microondas

Diseño y fabricación de estructuras de calentamiento industrial por microondas

Técnicas de medida de compatibilidad electromagnética

Oferta de colaboración

Procesos de precertificación para compatibilidad electromagnética

Diseño y construcción de aplicadores de energía microondas

Medida de permitividades complejas de materiales

Diseño de sistemas de telecomunicación aplicados a procesos industriales de calentamiento

Diseño de antenas y elementos radiantes

Evaluación de la dosimetría electromagnética en sistemas de comunicaciones móviles

Diseño de programas de mallado para simulación electromagnética

Diseño de antenas para terminales móviles de tercera generación

Datos de Contacto / Contact person

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