Compact NFC Stamp Antenna Enables Integration with Penta-band Antenna in Single Module

Pulse, a Technitrol Company is introducing its new NFC (near field communication) stamp antenna for mobile phones and portable wireless devices at electronica 2010, stand B6.323. This very small 15mm x 20mm x 5mm antenna can be integrated with a main antenna so they both fit inside a 40mm x 21mm x 5mm module, enabling both 13.56 MHz NFC communication and frequency ranges of 824 MHz to 960 MHz and 1710 MHz to 2170 MHz for wireless connectivity using GSM and WCDMA in the same device. Pulse's NFC stamp antenna is especially well suited to function with small RFID (radio frequency identification) tags. It can read tags with diameters ranging from 15 mm to 65 mm at distances ranging from 5 mm to 20 mm, which cannot be read with a large loop antenna (size 110 mm x 42 mm). When comparing the performance with rectangular tags measuring up to 86 mm x 53 mm, the performance is comparable to that of a large loop antenna (size 110x42mm). The NFC antenna operates at a frequency of 13.56 MHz, has an H-field of 1.5A/m, and a return loss of -25 dB. The main antenna is a penta-band antenna. For the 824 to 960 MHz frequency range it has an efficiency of 58 percent/-2.35 dB peak, 27/48 percent/ -5.7/-3.1 dB band edges, and a return loss of -5.2 dB. In the 1710 to 2170 MHz frequency range it has efficiencies of 59 percent/ -2.3 dB peak and 40/45 percent/ -3.9/-3.4dB band edges with a return loss of -5.1 dB. Both antennas have an impedance of 50 ohms and have operating temperatures ranging from -40° to +85°C. The separate NFC antenna can be integrated in the device back cover with a snap-fit structure also available.

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