RFID System with Active Tags Based on ams Chipset and Premo Antennas

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An innovative solution that combines a LF wake up and the communication via transceiver at 2.4 GHz through PREMO [1] (Spain) emitter antennas and 3D coils. ams [2] (Austria) solution includes on the base station a 2.4 GHz transceiver, the AS3940, and a LF wake-up transmitter (15 -150 KHz) based on a standard KGEA (Keyless Go Emitter Antenna) of PREMO.

Active tags are also determined by using a LF (15-150 kHz) wake up receiver, the AS3933, the AS3940 2,4GHz UHF frequency shift keying (FSK) transceiver, and an ultra-low power MCU.

The ams reference design uses a 3D antenna system, with an antenna in each of the x, y, and z axes, PREMO´s 3DC1515 Cap at 7.2mH, feeding one of the device´s inputs.

This solution extends the use of the emitter antennas and the 3D antenna to the field of active tags. The data are not transmitted in low frequency but UHF with a higher bandwidth and transmission capacity; the major problem of active tags, the battery life, can be solved. Now it is possible to operate for three years with a small CR2032 coin cell.

Premo antennas work in resonance or high tuning achieving high sensitivity and selectivity (High Q). The circuit, using a low power pulse signal and low frequency, can be activated with barely consumption to transmit. Then, it automatically turns off or turns for the same procedure (change to LF reception mode).

The key again is the sensitivity of the antennas that must be the maximum (PREMO´s key advantage).

The use of 3DCoils ensure the active module work regardless of its spatial

orientation as ensures that cross section brought to the field in LF is always maximum.

The components included are very competitive, and both active and most of the passive components are in mass production. The kit is ready to use in car since all components have been AECQ200 qualified.

ams offers the Demo kit with USB interface for designers.

PREMO offers a RFID designer kit with a set of receiver antennas with free refill service and an emitter antenna kit.

For more information visit www.ams.com [3] and www.grupopremo.com [1].

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