

UHF RFID with user interface (UI-TAG)

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Abstract

It is undoubted that UHF RFID technology provides great advantages in effectiveness and reliability of manufacturing and commercial processes.

In several applications, however, life-cycle of RFID tags lasts beyond the commercial work-flow, and – frequently intentionally, for the purpose of providing further information – tags and data remain accessible on the products after the purchase as well.

Currently the relatively low level of social acceptance and trust of RFID – due to possible tracking and skimming, that is providing information unintentionally – is the main issue in terms of further deployments. Consumers are concerned that this technology compromises their privacy, their personal data – and, in some sense, these fears are not always unsubstantiated. To change the current situation a joint effort shall be required from all participants who are committed to RFID technology. The most prominent associations suggest – beside legislation and awareness raising – privacy enhancing technologies, which is considered to be the best solution also in online public consultations by 70%¹. Based on the reasons mentioned above, here we suggest and describe a possible improvement of the current C1Gen2 standard in such a way that a **user interface have to be a mandatory part of all UHF RFID tags**. It would simply and effectively allow the control of transponders by the customers who purchased items with RFID tag. The most straightforward realization of this interface can be the integration of the otherwise widely spreaded NFC ability into UHF transponders. As one can observe in recent particular examples, this improvement cannot face technical objections.

It is a well-known fact, that the improvement of C1Gen2 standard is a hot topic – several papers appeared recently in this field, while C1Gen2v2 is just ratified². The idea of combination of UHF RFID and NFC technologies is also known³ (a couple of papers appeared in this topic also in RFIDJournal⁴).

¹Radio Frequency Identification (RFID) in Europe: steps towards a policy framework. Communication from the Commission of the EC to the European Parliament, Brussels, 2007

²<http://www.gs1.org/gsm/kc/epcglobal/uhfc1g2>

³Neology adds NFC to UHF RFID Transponders, The Wall Street Journal, May 14, 2013

⁴TwinLinux proposes to marry NFC and EPC, by Claire Swedberg, RFIDJournal, 2006

However, none of the above mentioned documents are aiming at standardization of direct communication between the transponder and the users in order to protect their privacy. In our view **the integration of this ability into the future version of RFID standards can yield real breakthrough in social acceptance and in spreading of this technology.**

In this paper we discuss these thoughts in detail, providing examples of possible applications and sketching the steps of realization at the level of standardization.

Keywords: RFID technology, NFC technology