

Security of Near Field Communication: Does My Phone Need A Tinfoil Hat?

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Outline

Introduction

Contactless Credit Cards

NFC and Mass Transit Ticketing

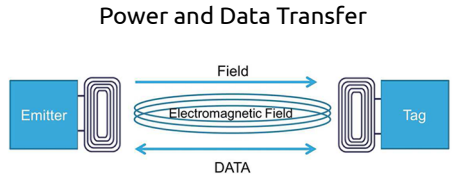
EnGarde: A Physical Approach to NFC Security

Conclusions

Tags & Readers

HF RFID Communication

- 1 Reader emits electricity
- 2 Tag is activated by induced power
- 3 Reader runs discovery protocol, selecting tag by unique ID
- 4 Communication ensues



Features

- Quick setup
- Line of sight not required

Conclusions

Tinfoil Hats for Everyone!

Elements in Whoville

Name	Symbol	A_r	M.P. (K)	IE (J)
Helium	He	4.00	1	$3.94e^{-18}$
Carbon	C	12.01	773	$3.94e^{-18}$
Arsenic	As	74.92	1090	$1.48e^{-18}$
Gold	Au	196.96	1337	$1.48e^{-18}$
Cobalt	Co	58.93	1495	$1.26e^{-18}$

Table: Properties of Whoville Elements

Trace rare earth metals:

- Ytterbium
- Praseodymium
- Neodymium

Obtaining Neodymium:

- ①—bastnäsite
- ②—monazite