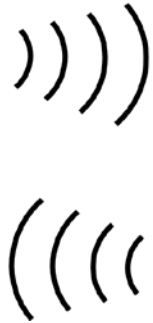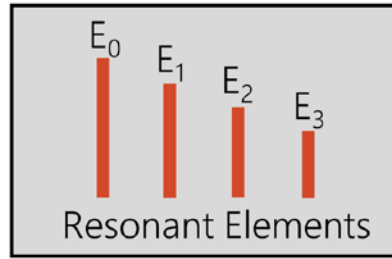# Chipless RFID Tag Design – Spencer Hutchinson

Reader

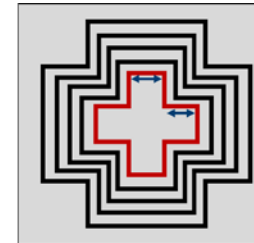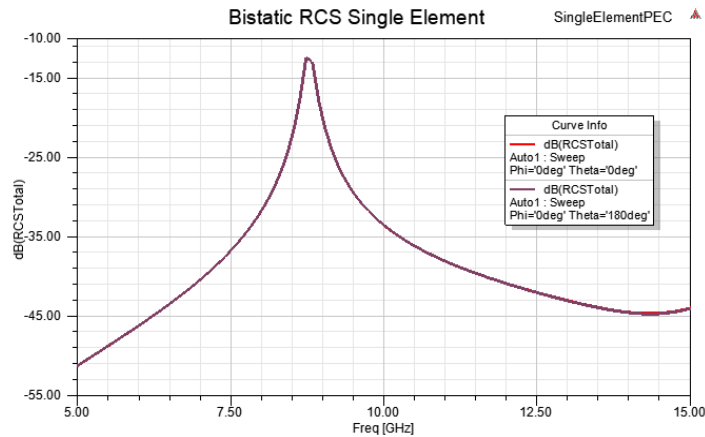Tag
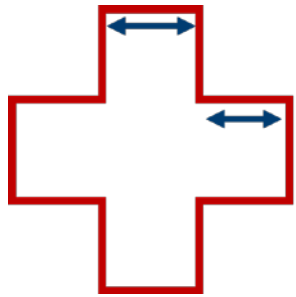
E_0 E_1 E_2 E_3

Resonant Elements

Element Present: $E_n = 1$
Element Absent: $E_n = 0$

Binary Value $= E_3 E_2 E_1 E_0$

Decimal Value $= 2^3 E_3 + 2^2 E_2 + 2^1 E_1 + 2^0 E_0$

Number of Combinations $= 2^n$

Bistatic RCS Single Element — SingleElementPEC

Curve Info
dB(RCSTotal)
Auto1 : Sweep
Phi='0deg' Theta='0deg'
dB(RCSTotal)
Auto1 : Sweep
Phi='0deg' Theta='180deg'

Tag on substrate with ground plane

Multi-Element Tag Monostatic RCS

Curve Info
dB(MonostaticRCSX)
Setup1 : Sweep
g_elem='1mm' w_hex='0.14mm'

ELECTRICAL ENGINEERING
COLORADO SCHOOL OF MINES

ARC