List of Symbols

α Collision recovery probability

α_2 Second collision recovery coefficient

α_3 Third collision recovery coefficient

α_4 Fourth collision recovery coefficient

η_{TA} Time-Aware reading efficiency

η_{conv} Conventional FSA reading efficiency

η_{MCRC} Multiple collision recovery aware reading efficiency

η_{TAMCRC} Time and multiple collision recovery aware reading efficiency

η_{TCA} Time and collision recovery aware reading efficiency

γ Mean of Poisson random variable

$\hat{n}$ Estimated number of tags

ε_{conv} Minimum squared error estimator

φ Pseudo parallel factor

ζ Mean reduction in number of slots

ζ_t Mean reduction in reading time

BLF Backscatter Link Frequency

C Number of collided slots

c Q-slot constant

c_1 Collided slot count selection constant

c_2 Empty slot count selection constant

C_b	Number of collided slots before the collision recovery
c_c	Collided Q-slot constant
c_e	Empty Q-slot constant
C_t	Slot duration constant
C_{exp}	Expected number of collided slots
C_{rate}	Estimated collision rate
DR	Divided Ratio
E	Number of empty slots
E_b	Number of empty slots before the collision recovery
E_{exp}	Expected number of empty slots
f_s	Sampling frequency
L	Frame Slotted ALOHA frame length
L_{MCRC}	Multiple collision recovery aware frame length
L_{opt}	Optimum FSA frame length
L_{TAMCRC}	Time and multiple collision recovery aware frame length
L_{TA}	Time aware frame length
L_{TCA}	Time and collision recovery aware frame length
M	Number of collided tags per slot
n	number of tags in the reading area
n_p	Number of pilot tones
$P(i)$	Probability of i tag rely per slot
$P(R)$	Probability that exactly R tags are active in one slot
P_c	Probability of collided slot
P_e	Probability of empty slot
P_s	Probability of successful slot

$P_{S_l}(R)$ Probability that scenario S_l happens

Q_{ini} Slot count parameter

R_{sol} Number of recovered tags

S Number of successful slots

S_b Number of successful slots before the collision recovery

S_{exp} Expected number of successful slots

t_c Collided slot durations

t_e Empty slot durations

t_s Successful slot durations

T_{EPC} EPC time

T_{QRep} Query repeat time

T_{RN16} RN16 time