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

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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	Devided 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