

LIST OF SYMBOLS

B	: Bandwidth of the channel
B_c	: Coherence bandwidth of the channel
T_s	: Symbol period
σ_τ	: the root-mean-square delay spread
$P_{PDP}(\tau)$: Power delay profile
$P(\tau_k)$: Power level of time delay
τ_k	: Time delay
$\bar{\tau}$: The mean excess delay
τ	: Excess delay spread
\mathbf{F}	: Fast Fourier Transform matrix
\mathbf{F}^H	: Inverse Fast Fourier Transform matrix
\mathbf{H}	: Toeplitz matrix
C	: Channel capacity
γ	: The signal-to-noise power ratio (SNR)
N	: Size of circulant matrix
\mathbf{H}_c	: Circulant matrix
N	: Size of circulant matrix
ψ	: The eigenvalue of multipath channel
M	: Bits per symbol of modulation
R	: Rate of channel coding
Q	: Cyclic prefix length of 5G-NR OFDM
E_b/N_0	: Energy of the bit divided by noise density
\mathbf{G}	: Generator matrix
\mathbf{H}	: Parity check matrix
\mathbf{b}	: Information bits
\mathbf{c}	: Coded bits
$c(i)$: Mapped duplets bits of CBPSK

CP	: Added cyclic prefix for 5G-NR OFDM numerology 2
x	: Transmitted bits
y	: Received bits
n	: Additive white Gaussian noise (AWGN)
CPremoval	: Removed cyclic prefix of 5G-NR OFDM numerology 2
EQ	: Equalizer
M⁻¹	: CBPSK demodulator
C⁻¹	: Channel decoder
$\hat{\mathbf{c}}$: Coded received bits
$\hat{\mathbf{b}}$: Recovered bits
ΔT	: Delta of period
P_o	: Outage Probability
P_r	: Probability
$R_{0.01}$: Intensity value for 0.01% of time in an average time in an average year
F_t	: Transmitted frame
F_e	: Error frame
B_t	: Transmitted bits
B_e	: Error bits
CP_D	: CP duration of 5G-NR OFDM numerology 2
S_D	: Symbol duration of 5G-NR OFDM numerology 2
N_{ori}	: FFT of original PDP
N_{sim}	: FFT of representative PDP
$\Sigma Path_{ori}$: Total path of original PDP
$\Sigma Path_{sim}$: Total path of representative PDP of 5G channel model
$H^{LOS}(f, r)$: The magnitude frequency response of the LOS path
$H_s(f, d)$: LOS path spread
$H_a(f, d)$: LOS path abs
$\alpha_m(f, T_K, p)$: The total molecular absorption coefficient