

An OFDM and MC-CDMA Primer

by

L. Hanzo and T. Keller

*We dedicate this monograph to the numerous contributors of this field, many
of whom are listed in the Author Index*

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¹This section is based on M. Münster, T. Keller and L. Hanzo, "Co-Channel Interference Suppression Assisted Adaptive OFDM in Interference Limited Environments", ©IEEE, VTC'99, Amsterdam, NL, 17-19 Sept. 1999.

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Other Wiley and IEEE Press Books on Related Topics ²

- R. Steele, L. Hanzo (Ed): *Mobile Radio Communications: Second and Third Generation Cellular and WATM Systems*, John Wiley and IEEE Press, 2nd edition, 1999, ISBN 07 273-1406-8, 1064 pages
- L. Hanzo, F.C.A. Somerville, J.P. Woodard: *Voice Compression and Communications: Principles and Applications for Fixed and Wireless Channels*; IEEE Press and John Wiley, 2001, 642 pages
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²For detailed contents and sample chapters please refer to <http://www-mobile.ecs.soton.ac.uk>

Acknowledgements

We are indebted to our many colleagues who have enhanced our understanding of the subject, in particular to Prof. Emeritus Raymond Steele. These colleagues and valued friends, too numerous to be mentioned, have influenced our views concerning various aspects of wireless multimedia communications. We thank them for the enlightenment gained from our collaborations on various projects, papers and books. We are grateful to Steve Braithwaite, Jan Brecht, Jon Blogh, Marco Breiling, Marco del Buono, Sheng Chen, Peter Cherriman, Stanley Chia, Joseph Cheung, Sheyam Lal Dhomeja, Dirk Didascalou, Lim Dongmin, Stephan Ernst, Peter Fortune, Eddie Green, David Greenwood, Hee Thong How, Ee Lin Kuan, W. H. Lam, C. C. Lee, Xiao Lin, Chee Siong Lee, Tong-Hooi Liew, Vincent Roger-Marchart, Jason Ng, Michael Ng, M. A. Nofal, Jeff Reeve, Redwan Salami, Clare Somerville, Rob Stedman, David Stewart, Jürgen Streit, Jeff Torrance, Spyros Vlahoyiannatos, William Webb, Stephan Weiss, John Williams, Jason Woodard, Choong Hin Wong, Henry Wong, James Wong, Lie-Liang Yang, Bee-Leong Yeap, Mong-Suan Yee, Kai Yen, Andy Yuen, and many others with whom we enjoyed an association.

We also acknowledge our valuable associations with the Virtual Centre of Excellence (VCE) in Mobile Communications, in particular with its chief executive, Dr Walter Tuttlebee, and other leading members of the VCE, namely Dr Keith Baughan, Prof. Hamid Aghvami, Prof. Ed Candy, Prof. John Dunlop, Prof. Barry Evans, Prof. Peter Grant, Prof. Mike Walker, Prof. Joseph McGeehan, Prof. Steve McLaughlin and many other valued colleagues. Our sincere thanks are also due to the EPSRC, UK for supporting our research. We would also like to thank Dr Joao Da Silva, Dr Jorge Pereira, Dr Bartholome Arroyo, Dr Bernard Barani, Dr Demosthenes Ikonomou, Dr Fabrizio Sestini and other valued colleagues from the Commission of the European Communities, Brussels, Belgium.

Without the kind support of Mark Hammond, Sarah Hinton, Jennifer Beal and their colleagues at the Wiley editorial office in Chichester, UK this monograph would never have reached the readers. *Finally, our sincere gratitude is due to the numerous authors listed in the Author Index — as well as to those whose work was not cited owing to space limitations — for their contributions to the state of the art, without whom this book would not have materialised.*

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Glossary

ACF	Auto-correlation Function
ACTS	Advanced Communications Technologies and Services - a European research programme
ADSL	Asynchronous Digital Subscriber Loop
AOFDM	Adaptive Orthogonal Frequency Division Multiplexing
APR	A Priori
APT	A Posteriori
AWGN	Additive White Gaussian Noise
BER	Bit-Error Ratio
BLAST	Bell Labs Space-Time architecture
BPOS	Bit Per OFDM Symbol
BPSK	Binary Phase-Shift Keying
BS	Base Station
CDF	Cumulative Distribution Function
CDMA	Code-Division Multiple Access
CE	Channel Estimation
CIR	Channel Impulse Response
DAB	Digital Audio Broadcasting
DDCE	Decision-Directed Channel Estimation

DDCP	Decision-Directed Channel Prediction
DFT	Discrete Fourier Transform
DMUX	Demultiplexer
DTTB	Digital Terrestrial Television Broadcast
D-BLAST	Diagonal BLAST
EM	Expectation Maximisation
EVD	EigenValue Decomposition
FDM	Frequency Division Multiplexing
FDMA	Frequency Division Multiple Access
FEC	Forward Error Correction
FFT	Fast Fourier Transform
FIR	Finite Impulse Response
HF	High-Frequency
ICI	Inter-subCarrier Interference
IDFT	Inverse Discrete Fourier Transform
IFFT	Inverse Fast Fourier Transform
IIR	Infinite Impulse Response
ISI	Inter-Symbol Interference
IWHT	Inverse Walsh Hadamard Transform
KLT	Karhunen-Loeve Transform
LLR	Log-Likelihood Ratio
LS	Least-Squares
LSE	Least-Squares Error
MA	Multiple Access
MC	Multi-Carrier
MIMO	Multiple-Input Multiple-Output
ML	Maximum Likelihood

MLSE	Maximum Likelihood Sequence Estimation
MMSE	Minimum Mean-Square Error
MSE	Mean-Square Error
MU	Multi-User
MUD	Multi-User Detection
MUI	Multi-User Interference
MUX	Multiplexer
MV	Minimum Variance
MVDR	Minimum Variance Distortionless Response
OFDM	Orthogonal Frequency Division Multiplexing
PAPR	Peak-to-Average Power Ratio
PDF	Probability Density Function
PIC	Parallel Interference Cancellation
PSAM	Pilot Symbol Aided Modulation
PSD	Power Spectral Density
PSK	Phase-Shift Keying
QAM	Quadrature Amplitude Modulation
QPSK	Quadrature Phase-Shift Keying
RLS	Recursive Least-Squares
RNS	Residue Number System
SB	Subband
SDM	Space Division Multiplexing
SDMA	Space Division Multiple Access
SDI	Selective Decision Insertion
SER	Symbol Error Ratio
SIC	Successive Interference Cancellation
SINR	Signal-to-Interference-plus-Noise Ratio

SIR	Signal-to-Interference Ratio
SMI	Sample Matrix Inversion
SNR	Signal-to-Noise Ratio
STC	Space-Time Coding
SVD	Singular-Value Decomposition
TCM	Trellis-Coded Modulation
TDD	Time-Division Duplexing
TDMA	Time-Division Multiple Access
TTCM	Turbo-Trellis Coded Modulation
V-BLAST	Vertical BLAST
WATM	Wireless Asynchronous Transfer Mode
WHT	Walsh-Hadamard Transform
WHTS	Walsh-Hadamard Transform Spreading
ZF	Zero-Forcing
1D	One-Dimensional
2D	Two-Dimensional

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