Index

3GPP, 2, 5, 45, 93
3GPP2, 2, 5, 45
AAA server, 105
Active mode, 383–5, 386
Adaptive multi-user transceiver, 243
Admission control, 112, 394–6, Alamouti, 227, 495, 505–6
AMPS, 2
Angle of arrival, 45, 59, 64, 78–80, 87, 233
Angle of departure, 45, 59, 64, 78–80, 87
Antenna bore-sight, 489–90
AoA
  see Angle of arrival
AoD
  see Angle of departure
ARIB, 7
ARQ
  outer, 311, 434
  inner
    see Hybrid ARQ
    see also Relay ARQ
Array
  gain, 220
Average session duration, 466, 474–5
Azimuth spread, 58, 61
Base coverage urban (test scenario), 486–93, 495–513
Base station, 96–7, 106–7
  parameter, 487, 489
Beamforming, 232–43
Beams
  fixed, 233, 366
  grid of, 233, 366, 495–500, 509–513
Bit-interleaved coded modulation (BICM), 136, 484
Block Low-Density Parity Check (BLDPC)
  encoding, 139
  codes (BLDPC), 138
  decoding, 141
Broadcast, 102, 111, 117
  see also Multicast
Candidate spectrum bands, 440, 442, 478
Capacity requirement calculation, 465, 469–70, 474–6
CAPEX, 531–5
CBR
  see Constant bit rate model
CDL model
  see Clustered delay line model
cdma2000, 2
Cell edge
  performance, 283, 493, 499, 501, 504–6
  user throughput, 241, 243, 270, 493, 502
Cell range, 490
CEPT, 2
Channel allocation
  dynamic channel allocation (DCA), 357
  fixed channel allocation (FCA), 357
Index

Channel estimation, 179
  cellular interference, 182
degradation, 184, 186, 190
genetic algorithm (GA) aided, 185
  iterative (ICE), 180, 182
MIMO, 185
  pilot-aided (PACE), 180, 181
prediction, 190
Channel impulse response, 72, 84, 87
Channel measurement, 47, 55–9
Channel prediction
  see Channel estimation, prediction
Channel quality indicator (CQI), 169, 228,
  257, 259, 332–5
delay, 252–3
Channel state information (CSI), 170, 228,
  259
effective (ECSI), 170
feedback, 200
long-term, 170, 366
  quantisation errors, 200
  short-term, 170
  transmitter (CSIT), 170
Channel symbol, 118, 333
Chase combining, 163–5, 496, 501, 505, 509
Chunk, 118, 224–5
  layer, 119, 224–5, 237
Clustered Array, 243
Clustered delay line model, 86–7
Code Division Multiple Access (CDMA), 2,
  328
  Multi-carrier CDMA (MC-CDMA),
    329
Common phase error (CPE), 196–198
Competition band, 177, 269
Concatenation, 114, 119–20, 122
Congestion control, 404–5
Constant bit rate model, 16, 508
Control plane, 111–12, 307
Control signalling, 95, 125–6, 228
Cooperative diversity
  see Diversity, cooperative
Cooperative relaying, 258, 260, 304–6
Coordinated Multipoint (CoMP)
  Transmission
  see Distributed antenna systems
Correlation, 44–7, 86
  of large-scale parameters, 64–68
distance, 68, 79, 546
  parameters, 78–80
Cost
  assessment framework, 526
  components, 530
  figures, 537
  of relays, 293
  optimisation, 555
Cross-correlation of parameters, 64–8, 78, 80
Cross-polarisation (XPR), 79
Cyclic delay diversity (CDD), 369–72
DARPA, 7
DAS
  see Distributed antenna systems
Data rate
  peak, 2, 31
  sustainable, 31
Dedicated band, 434, 446
Delay spread, 45, 61, 64, 78, 81, 85–6, 327
Delay,
  propagation, 209
HARQ, 164
  multi-hop, 289, 306
  requirement of service classes, 21–2
  see also Packet delay
  transmission, 348
user,
  achievable, 32
  definition, 31
Deployment scenario, 18, 19
  local area, 19, 517
  metropolitan area, 19
  wide area, 18
Distributed antenna systems (DAS), 258, 261
Distributed MIMO
  see Distributed antenna systems
Diversity
  cooperative, 260–2, 271
distributed, 261
gain, 221
macro, 105, 304, 368, 505
  receive, 231, 370
  transmit, 370
<table>
<thead>
<tr>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doppler, 44, 62–3, 87 181</td>
</tr>
<tr>
<td>Double directional, 40, 47</td>
</tr>
<tr>
<td>Drop, 68–9</td>
</tr>
<tr>
<td>DRS</td>
</tr>
<tr>
<td>see Dynamic Resource Sharing</td>
</tr>
<tr>
<td>Duo-Binary Turbo Codes (DBTC), 151–60</td>
</tr>
<tr>
<td>Dynamic Resource Sharing (DRS), 301, 503–4</td>
</tr>
<tr>
<td>E2E ARQ</td>
</tr>
<tr>
<td>see ARQ, outer</td>
</tr>
<tr>
<td>EDGE, 2</td>
</tr>
<tr>
<td>Elevation spread, 80–1</td>
</tr>
<tr>
<td>Equipment sharing, 101, 440</td>
</tr>
<tr>
<td>Erlang-B formula, 469, 476</td>
</tr>
<tr>
<td>ETRI, 7</td>
</tr>
<tr>
<td>European Commission, 1, 3</td>
</tr>
<tr>
<td>Exclusion zone, 422 424, 442–4</td>
</tr>
<tr>
<td>Exponential distribution, 65, 67–8, 72</td>
</tr>
<tr>
<td>Extension band, 435</td>
</tr>
<tr>
<td>Fast fading, 45, 69 351, 482</td>
</tr>
<tr>
<td>FDD, 117–19, 341–2</td>
</tr>
<tr>
<td>Feedback, 125, 182, 255–8, 335</td>
</tr>
<tr>
<td>Firefly synchronisation, 205</td>
</tr>
<tr>
<td>compensating propagation delays, 210</td>
</tr>
<tr>
<td>pulse-coupled oscillators, 206</td>
</tr>
<tr>
<td>rules, 207</td>
</tr>
<tr>
<td>Fixed satellite services (FSS), 420</td>
</tr>
<tr>
<td>Flashlight effect, 251</td>
</tr>
<tr>
<td>Flexible spectrum use (FSU), 419</td>
</tr>
<tr>
<td>Flow, 105</td>
</tr>
<tr>
<td>class, 105–6, 119–121, 347</td>
</tr>
<tr>
<td>control, 106, 401–4</td>
</tr>
<tr>
<td>Forward error correction (FEC) code, 137, 222–4, 433</td>
</tr>
<tr>
<td>blocks, 120, 129</td>
</tr>
<tr>
<td>Frame, 117–9, 330, 335, 492–3</td>
</tr>
<tr>
<td>Frequency Division Multiple Access (FDMA), 326</td>
</tr>
<tr>
<td>Block Equidistant FDMA (B-EFDMA), 331</td>
</tr>
<tr>
<td>Block Interleaved FDMA (B-IFDMA), 331, 337</td>
</tr>
<tr>
<td>Interleaved FDMA (IFDMA), 337</td>
</tr>
<tr>
<td>Localised FDMA (LFDMA), 337</td>
</tr>
<tr>
<td>Frequency re-use, 188, 360</td>
</tr>
<tr>
<td>fractional (FFR), 361, 364, 516–8</td>
</tr>
<tr>
<td>soft (SFR), 302; 360, 514–8</td>
</tr>
<tr>
<td>FuTURE Forum, 6</td>
</tr>
<tr>
<td>FuTURE project, 6</td>
</tr>
<tr>
<td>Fuzzy Logic, 407</td>
</tr>
<tr>
<td>Gateway, 96, 98–9, 397, 398, 401</td>
</tr>
<tr>
<td>logical node, 96</td>
</tr>
<tr>
<td>control gateway, 96, 104–6</td>
</tr>
<tr>
<td>IP anchor gateway, 96, 104–6</td>
</tr>
<tr>
<td>Generalised multi-carrier modulation (GMC), 95, 337</td>
</tr>
<tr>
<td>Generic (channel) model, 47, 63, 70, 78, 80, 86</td>
</tr>
<tr>
<td>Genetic Algorithm</td>
</tr>
<tr>
<td>see Channel estimation, genetic algorithm aided</td>
</tr>
<tr>
<td>Geometry-based (stochastic) channel model, 40, 46, 47, 59</td>
</tr>
<tr>
<td>Global time reference, 210</td>
</tr>
<tr>
<td>GoB</td>
</tr>
<tr>
<td>see Beams, grid of</td>
</tr>
<tr>
<td>GPRS, 2</td>
</tr>
<tr>
<td>Grid-based scenario, 41, 42, 80</td>
</tr>
<tr>
<td>GSM, 2</td>
</tr>
<tr>
<td>Handover, 99–100, 106</td>
</tr>
<tr>
<td>horizontal, 4</td>
</tr>
<tr>
<td>intermode, 390–2, 409, 410–4</td>
</tr>
<tr>
<td>intramode, 389–90, 410–2</td>
</tr>
<tr>
<td>intersystem, 392–3, 407</td>
</tr>
<tr>
<td>IP handover, 381, 388–9, 393</td>
</tr>
<tr>
<td>vertical, 4</td>
</tr>
<tr>
<td>Hardware sharing</td>
</tr>
<tr>
<td>see Equipment sharing</td>
</tr>
<tr>
<td>High power amplifier (HPA), 192</td>
</tr>
<tr>
<td>backoff, 193, 194</td>
</tr>
<tr>
<td>Higher order sectorisation (HOS), 333</td>
</tr>
<tr>
<td>Horizontal sharing, 422</td>
</tr>
<tr>
<td>HSPA, 2</td>
</tr>
<tr>
<td>Hybrid automatic repeat request (H-ARQ), 113–15, 126–7, 162–4</td>
</tr>
<tr>
<td>context transfer, 434</td>
</tr>
<tr>
<td>segment 120–2</td>
</tr>
<tr>
<td>process, 120</td>
</tr>
</tbody>
</table>
Hybrid Information System (HIS), 385

Idle mode, 383–5
IEEE standardisation, 6
IEEE802.xx series, 3, 7, 279
Impulse response, 44, 48, 59, 72, 85
see also Channel impulse response
IMT-2000, 2, 5, 460–1, 464, 478
IMT-Advanced, 1, 3, 460–4, 477–8
Incremental redundancy, 120
cyclic, 163–5
Indifference curve, 294, 295, 550–1
Indoor
scenario, 486–93, 517–521
coverage, 501–3, 506–8, 513–4
Inter-GW handover, 393
Inter-base-station communication (IBSC), 435–40
Inter-carrier interference (ICI), 196
Interference cancellation (IC), 352–7
direct IC, 354
Indirect IC, 354
inter-cell IC (IIC), 353
Parallel IC (PIC), 353
Interference coordination, 360, 514
Interference mitigation, 250, 326, 349
Interference rejection combining (IRC), 232, 370
International Telecommunication Union, 1, 3, 4, 459–61
Interpolation, 179–80, 181
Inter-site distance, 487, 489–90
IP convergence layer (IPCL), 109–110, 112–14, 378, 381

IPCL
see IP convergence layer

IS–95 cdma, 2
ISD
see Inter-site distance
Iso-performance, 550
Iterated block decision feedback equaliser (IBDFE), 184, 187
Iterative channel estimation (ICE)
see Channel estimation, Iterative (ICE)

ITU
see International Telecommunication Union

Kalman Predictor, 191
Laplacian distribution, 45, 87
Large-scale parameter, 48, 64–70
LDC
see Linear dispersion code
Least satisfaction algorithm, 453
Line of Sight (LoS), 41–3, 54, 71, 75–9
model parameters, 78–81
probability, 80
Linear dispersion code (LDC), 221, 270
adaptive, 237
Link level procedures, 169
Link-to-system interface, 351, 483–4
Load balancing, 100, 106
between gateways, 394
between RAPs,
Load control
see Congestion control
Logical channel, 109–10, 114–16, 123–4, 396
LBCCH, 123
LCCCH, 124
LDCH, 124
LDTCH, 124
LMCCH, 124
LMCH, 124
LPCCH, 124, 385
Logical node, 93, 96, 104–110
architecture, 93, 96–109
Low Density Parity Check Code (LDPCC)
see Block Low Density Parity Check code
LSP
see Large-scale parameters
LTE, 2
M/G/1 nonpreemptive priority queue, 470, 476
MAC
see Medium access control
Manhattan grid, 486–7, 490
Market study, 462, 466, 468
<table>
<thead>
<tr>
<th>Index</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum flexibility algorithm, 453</td>
<td></td>
</tr>
<tr>
<td>Maximum number of supported users, 493–4</td>
<td></td>
</tr>
<tr>
<td>Maximum ratio combining (MRC), 232, 357, 370</td>
<td></td>
</tr>
<tr>
<td>MCBC,</td>
<td></td>
</tr>
<tr>
<td><strong>see Multicast</strong></td>
<td></td>
</tr>
<tr>
<td>Mean service bit rate, 466, 468–9</td>
<td></td>
</tr>
<tr>
<td>Measurements, 200, 257</td>
<td></td>
</tr>
<tr>
<td><strong>metrics, 200</strong></td>
<td></td>
</tr>
<tr>
<td><strong>signalling, 200</strong></td>
<td></td>
</tr>
<tr>
<td>Medium access control (MAC), 115–117, 119–21, 223, 308–8</td>
<td></td>
</tr>
<tr>
<td><strong>relay, 308</strong></td>
<td></td>
</tr>
<tr>
<td><strong>transmission control, 346–8</strong></td>
<td></td>
</tr>
<tr>
<td>MI-ACM (mutual interference based adaptive coding and modulation),</td>
<td></td>
</tr>
<tr>
<td>161, 495–500</td>
<td></td>
</tr>
<tr>
<td>Microcellular (test scenario), 486–93, 513–517</td>
<td></td>
</tr>
<tr>
<td>MIESM, 484</td>
<td></td>
</tr>
<tr>
<td>MIMO</td>
<td></td>
</tr>
<tr>
<td><strong>see Multiple Input Multiple Output</strong></td>
<td></td>
</tr>
<tr>
<td>Minimum Mean Square Error (MMSE), 191, 232</td>
<td></td>
</tr>
<tr>
<td><strong>linear, 197</strong></td>
<td></td>
</tr>
<tr>
<td><strong>successive,</strong></td>
<td></td>
</tr>
<tr>
<td><strong>see Successive MMSE</strong></td>
<td></td>
</tr>
<tr>
<td>MISO</td>
<td></td>
</tr>
<tr>
<td><strong>see Multiple Input Single Output</strong></td>
<td></td>
</tr>
<tr>
<td>mITF, 7</td>
<td></td>
</tr>
<tr>
<td>Mobility ratio, 17, 466, 468</td>
<td></td>
</tr>
<tr>
<td>Mobility, 16, 25, 98–100, 106–110</td>
<td></td>
</tr>
<tr>
<td>MRC</td>
<td></td>
</tr>
<tr>
<td><strong>see Maximum ratio combining</strong></td>
<td></td>
</tr>
<tr>
<td>Multi-band scheduler, 122–3, 431–3</td>
<td></td>
</tr>
<tr>
<td>Multi-band transmission, 102–4</td>
<td></td>
</tr>
<tr>
<td>Multicast, 465, 469, 470, 504–8</td>
<td></td>
</tr>
<tr>
<td><strong>see also Multimedia broadcast multicast service</strong></td>
<td></td>
</tr>
<tr>
<td>Multi-hop network, 281</td>
<td></td>
</tr>
<tr>
<td>Multi-user MIMO,</td>
<td></td>
</tr>
<tr>
<td><strong>concept, 244, 247, 248</strong></td>
<td></td>
</tr>
<tr>
<td>uplink performance, 269</td>
<td></td>
</tr>
<tr>
<td>Multimedia broadcast Multicast Service (MBMS), 102–3, 105, 124–5</td>
<td></td>
</tr>
<tr>
<td>Multiple access, 325</td>
<td></td>
</tr>
<tr>
<td>Multiple input multiple output (MIMO), 219, 220</td>
<td></td>
</tr>
<tr>
<td>distributed, 31</td>
<td></td>
</tr>
<tr>
<td>model, 44–9, 59, 63</td>
<td></td>
</tr>
<tr>
<td><strong>see also Multi-user MIMO</strong></td>
<td></td>
</tr>
<tr>
<td>Multiple Input Single Output (MISO), 220</td>
<td></td>
</tr>
<tr>
<td>MultiSphere level concept, 4</td>
<td></td>
</tr>
<tr>
<td>Multi-state channel, 483</td>
<td></td>
</tr>
<tr>
<td>Mutual information based adaptive coding and modulation</td>
<td></td>
</tr>
<tr>
<td><strong>see MI-ACM</strong></td>
<td></td>
</tr>
<tr>
<td>Mutual information effective SINR mapping</td>
<td></td>
</tr>
<tr>
<td><strong>see MIESM</strong></td>
<td></td>
</tr>
<tr>
<td>Network layout, 489–92</td>
<td></td>
</tr>
<tr>
<td>NGMC, 7</td>
<td></td>
</tr>
<tr>
<td>NGMN, 3</td>
<td></td>
</tr>
<tr>
<td>Non Line of Sight (NLoS), 41–2, 56, 57, 72, 77</td>
<td></td>
</tr>
<tr>
<td><strong>model parameters, 76, 78–81</strong></td>
<td></td>
</tr>
<tr>
<td>NSF, 7</td>
<td></td>
</tr>
<tr>
<td>Operational expenditures (OPEX), 294, 436, 531</td>
<td></td>
</tr>
<tr>
<td>Opportunity Driven Multiple Access (ODMA), 281</td>
<td></td>
</tr>
<tr>
<td>Optimum combining, 232</td>
<td></td>
</tr>
<tr>
<td>Orthogonal Frequency Division Multiple Access (OFDMA), 328</td>
<td></td>
</tr>
<tr>
<td>Orthogonal pilot set</td>
<td></td>
</tr>
<tr>
<td><strong>see Pilot, Set</strong></td>
<td></td>
</tr>
<tr>
<td>Over-the-air (OTA), 435, 438</td>
<td></td>
</tr>
<tr>
<td>Packet delay, 31–2, 318, 466, 494, 509–12</td>
<td></td>
</tr>
<tr>
<td>Paging, 105, 385, 386</td>
<td></td>
</tr>
<tr>
<td><strong>channel, 124, 125</strong></td>
<td></td>
</tr>
<tr>
<td><strong>indication (PI), 125</strong></td>
<td></td>
</tr>
<tr>
<td><strong>message (PM), 125</strong></td>
<td></td>
</tr>
<tr>
<td>PARC</td>
<td></td>
</tr>
<tr>
<td><strong>see Per Antenna Rate Control</strong></td>
<td></td>
</tr>
<tr>
<td>PAS</td>
<td></td>
</tr>
<tr>
<td><strong>see Power azimuth spectrum</strong></td>
<td></td>
</tr>
<tr>
<td>Path loss, 45, 71, 75–7, 278–9</td>
<td></td>
</tr>
<tr>
<td>PDC, 2</td>
<td></td>
</tr>
<tr>
<td>PDU</td>
<td></td>
</tr>
<tr>
<td><strong>see Protocol data unit</strong></td>
<td></td>
</tr>
</tbody>
</table>
Index

Peak-to-average power ratio (PAPR), 193, 202
Per stream rate control (PSRC), 226
Phase locked loop (PLL), 198
Phase noise, 195
  linear minimum mean squared error (LMMSE), 197
model, 196
OFDM, 196
serial modulation, 198
Phase response curve (PRC), 206
Physical channel, 126, 131
  PADC, 129
  PBCH, 127
  PDCFC, 128
  PMBC, 129
  PNDC, 128–30
  PRACH, 117–0, 130
  PUCH, 130–1
Physical layer, 125–31
Physical node, 96
Pilot design, 169, 253–6
  capacity, 179
  downlink, 174
  FDD, 174, 176
  preamble, 177
  TDD, 175, 177
  uplink, 175, 179
Pilot
  preamble, 117–8
  synchronisation, 130–1
  boost, 174
  common, 171
  dedicated, 172
  grid, 169, 171, 172, 174
  overhead, 175, 184
  pattern
    170, 172
  re-use, 173, 182
  sequence, 174
  set, 171
  spatial multiplexing
    see Pilot, re-use
  type, 171
Pilot-aided channel estimation (PACE)
  see Channel estimation, Pilot aided
Point-to-multipoint
  see Multicast
Pool area
  see Pool concept,
  Pool concept, 98–102
Power azimuth spectrum, 87
Power spectrum sidelobe, 193
Propagation scenario, 41, 71
Protection distance, 442, 444–6
Protocol
  architecture, 94, 109
  data unit (PDU), 110, 114, 119, 378
  Pulse-coupled oscillator, 205
  see also Firefly Synchronisation
QC-BLDPC
  see BLDPC
Radio access technique group, 462, 467–8
Radio environment, 467, 468, 475
Radio handover, 387–9
  see also Handover
Radio link control (RLC), 114–15, 311, 382, 432
Radio regulations, 459–61
Radio resource control (RRC), 110–12, 381, 383–5
Radio resource management, 406-
  centralised, 406
  common, 409
  distributed, 406
  hybrid, 407
  in relay-enhanced cells, 297
Random vector quantisation (RVQ), 201
Rapp model, 193
RAT group
  see Radio access technique group
Reference BS, 210
Reference design, 93
Refractionary period, 207
Regularised block diagonalisation (RBD), 249–51, 266–9
Relay Alamouti diversity, 261
Relay coherent combining (RCC), 261
Relay cyclic delay diversity (RCDD), 261
Relay node, 96–7, 107, 277, 399
Index

Relay
  ARQ, 311
  deployment, 282–92
  deployment cost, 293
  parameter, 488–9
  relay-enhanced cell (REC), 279
Relaying
  amplify-and-forward, 261, 281
  cooperative Relaying (CR), 304
  decode-and-forward, 261, 296
  MIMO, 392
  performance assessment, 312–19, 501–8, 513–21
Requirement
  coverage, 30
  delay, 31–2
  measurements, 26
  performance, 29
  spectrum
    fragmentation, 34
  range, 34
  system, 24
Resource allocation, 121–2, 299, 308–10, 336–8, 503
Resource negotiation, 425
Resource partitioning, 117, 310, 490, 519
  load-based, 299
  dynamic, 503
  fixed, 501
  with soft frequency, 516
Retransmission
  delay, 348–9
  unit, 114, 119
Ricean K-factor, 64, 71
RLC
  see Radio link control
RRC
  see Radio resource control
RRM server, 96–8, 108, 378, 395, 396, 399
Satisfied user criterion, 246, 493–4
Scheduler, 115–7, 120–3, 496–8, 501
  delay-aware, 509–3
  Maximum C/I, 496
  phased approach, 515, 517
  proportional fair, 496, 498, 509–13
  round robin, 482, 496–8, 501, 503
SDMA
  see Space division multiple access
SDU
  see Service data unit
Segmentation, 114–15, 119–20
Service access points, 110, 223
Service category, 466
Service data unit (SDU), 110, 378
Service environment, 467
Session arrival rate per user, 466, 475
SFN
  see Single frequency network
Shadow fading, 58, 60, 64–8, 75–76, 78–9
SIMO
  see Single Input Multiple Output
Simulation parameters
  deployment-specific, 487–91
  environment-specific, 486
Simulation
  dynamic system level, 482
  link level, 482
  protocol level, 482
  quasi-static system level, 48
  static system level, 482
Simulator
  see Simulation
Single frequency network (SFN), 103, 505–8
Single Input Multiple Output, 219
SISO
  see Single Input Single Output
Site-sharing, 436, 529
Slot, 117–19
Small-scale parameter, 59, 72
Snapshot, 45
Soft frequency re-use
  see Frequency re-use
Space time Coding 221
Space-time block coding, 495, 500
S-PARC, 497, 500
Spatial adaptation, 229
Spatial division multiple access, 228, 233, 496–500, 511–3
Spatial multiplexing
  gain, 221
Spatial user selection, 230
Spectral efficiency, 32, 493–4, 496, 498–500, 504, 513
Spectrum assignment, 420, 423
  long term, 423, 425–7, 447–51
  short term, 424, 427–9, 430, 451–4
Spectrum beacon channel, 446
Spectrum calculation
  methodology, 461–72, tool, 461, 472–7
Spectrum demand, 459–60, 477–8
  see also Spectrum calculation
Spectrum identification for IMT, 459–60, 463, 478
Spectrum manager, 430
Spectrum mask, 193
Spectrum register, 424
Spectrum resource change (SRC), 426
Spectrum server, 96–8, 108–9
Spectrum sharing, 420
  and coexistence (SSC), 35, 419
Spread Spectrum Multi-Carrier Multiple Access (SS-MC-MA), 329
STBC
  see Space time block coding
STC
  see Space time coding
SUC
  see Satisfied user criterion
Successive MMSE, 248–51, 268–70
Super-frame, 117–8, 297–8, 308–10
Synchronisation
  frequency, 201, 203
  link, 201
  narrowband interference (NBI), 204
  network
    see Firefly synchronisation
    of BS, 506–8
    preamble, 201, 204
    time, 201, 202
System concept, 93
System information, 113, 387, 400
System packet delay, 494
TCP, 378–80, 410
TDD, 117–9
Teledensity, 3, 467, 476
Test scenario, 485
Time Division Multiple Access (TDMA), 327
Timing advance procedure, 209
T-Pilot, 201
Traffic calculation, 468
Traffic distribution, 469, 472, 542
Traffic map
  heterogeneous, 542
Traffic
  FTP, 23
  interactive applications, 24
  internet and multimedia, 22
  model, 20
  streaming, 23
  video telephony, 23
  Voice over Internet Protocol (VoIP), 23
Transmission mode
  frequency-adaptive, 331
  non-frequency-adaptive, 331
Transmitter
  generic, 221, 222
Transport block, 114, 119, 223–5, 347
Transport channel, 110, 123–5, 131
  TBCH, 124
  TMCH, 125
  TPCH, 125
  TRAC, 125
  TSCH, 125
Turbo equalisation, 190
Two-dimensional cyclic prefix (2D-CP), 262
UMTS, 2, 5
Unicast, 102–3
  traffic, 465, 469
User density, 16, 466, 474–5, 542
User grouping, 229
User mobility
  see Mobility
User packet delay
  see Packet delay
Index

User plane, 109–10, 381, 384
User terminal, 108, 498–9
User throughput, 30, 493–4
UT Active
  see Active mode
UT Detached, 383
UT Idle
  see Idle mode
Van diagram, 5
Vertical sharing, 420–1

Wall loss, 41
Wiener filter, 181
model mismatch, 181
Wiener process, 196
WINNER Radio Access Network (WRAN), 93, 96
WINNER, 1, 3, 7, 8
World Radiocommunication Conference (WRC), 1, 3, 419
WWI, 9
WWRF, 3, 4