

Index

- 16-QAM, 31, 38, 61, 105, 108, 111, 112
 - PAPR, 38, 124
- 256-QAM, 31
- 64-QAM, 31, 61, 111–113

- ad hoc, 92, 94
- AMR, 76, 172
 - narrowband, 76
 - wideband, 76
- antenna, 57, 63
 - adaptive array, 64, 67, 68, 202, 206
 - at base station, 82, 120
 - at mobiles, 136
 - costs, 120
 - directional, 63
 - distributed, 86
 - diversity, 38, 40
 - height, 147, 148
 - installation, 148
 - MIMO, 74, 202, 206
 - smart, *see* antenna, adaptive array
 - TDD-FDD co-location, 122
 - tilt, 144
- ARPU, 7–9, 183
 - different countries, 21, 22

- billing
 - end-user, 162
 - third party, 161
- Bluetooth, 95
- BPSK, 30, 113
- broadband
 - fixed, 3, 11
 - wireless, 1, 10
 - access technologies, 16
 - signal processing, 125
 - spectrum for, 11
 - throughput, 103–104

- capacity, 16, 33, 35, 48, 49, 164
 - data systems, 101
 - in presence of interference, 60
 - increase, 63, 68, 71, 72, 74, 83, 144
 - interference in the downlink, 61
 - interference in the uplink, 62
 - limit, 59
 - voice systems, 99
- CDMA, 17, 34, 38, 40, 59, 61, 66, 68–71, 84, 92, 101, 106, 124
- CDMA2000, 12, 120, 132
 - transmission rate, 165
- cell structure, 81, 146
 - macro-cell, 81
 - micro-cell, 83
 - mini cell, 90
 - pico-cell, 85
 - umbrella, 85
 - wireless LAN, 86
- channel coding, 42, 61, 73, 103
 - HARQ, 105
 - LDPC codes, 43, 44
 - rate, 43
 - Turbo codes, 43, 44
- circuit switched, 14, 45
- coherence bandwidth, 29, 36
- content aggregation
 - nonportal, 161
 - portal, 161

- cost, 2, 193
 - amplifier, 38, 52, 66, 68, 122, 123, 135, 195
 - cell design, 195
 - equipment, 117–139, 194
 - fixed, 21, 117, 141, 148, 152
 - handsets, 7, 118, 135, 196
 - total RF, 125
 - infrastructure, 11, 52, 79
 - installation, 64, 127, 144, 147, 148, 195, 196
 - licensing, 126, 129, 132
 - spectrum, 97–115, 193
 - variable, 141, 151, 153, 155
- CSMA, 19, 86, 113, 179
- DECT, 12
- delay spread, 29, 30, 37, 40
- diversity combining, 38, 40, 109
 - maximal ratio combining, 42
 - selection combining, 41
- Doppler rate, 27
- DSL, 4, 25
 - backhaul, 150
 - customer acquisition, 152
 - rates, 4
 - wireless, 97, 103, 180
 - China, 182
 - Japan, 182
- equalisation, 32–35, 125
 - code domain, 34, 71, 106
 - feedback, 13
 - frequency domain, 33
 - time domain, 33
- Erlang-B, 50, 193
- Erlang-C, 51, 193
- fading, 25–30, 33
 - flat, 26, 27
 - frequency selective, 29, 35
 - mitigation, 38
- FDD, 12
 - feedback, 40
 - multi-hop, 89
 - overlay, 146
 - voice traffic, 15
- FDMA, 16, 69, 84, 99
- FEC, *see* channel coding
- flat-rate, 22, 153, 158, 162, 165, 166, 172, 174
- form factor, 158
- frequency reuse, 33, 57, 146
 - in interference-limited systems, 59, 101
 - in noise-limited systems, 59, 99
- FTTH, 4, 150
- GSM, 17, 19, 59, 69, 95, 100, 165
- handover, 92, 130, 132
- Hata model, extended, 51, 66
- header compression, 47
- HSDPA, *see* WCDMA or TD-CDMA
- hybrid ARQ, 57, 72
 - Chase combining, 73
 - incremental redundancy, 73
- i-mode, 7, 8, 22
- input-back-off (IBO), *see* PPR124
- interference avoidance, *see* interference reduction
- interference cancellation, *see* interference reduction
- interference reduction, 57, 68
 - interference avoidance, 71
 - interference cancellation, 35, 69
 - joint detection, 35, 70, 71, 106, 108, 125, 126, 202, 204
- ISDN, 3
 - fixed-line, 25
- joint detection, *see* interference reduction
- LDPC codes, *see* channel coding
- link budget, 52
- market, 111, 124, 141, 143, 151, 154, 163
 - business, 164, 171
 - consumer, 164, 171
 - penetration, 5, 6
 - scenarios, 178, 182
 - share, 172

- market size, 180
- mean opinion score, *see* MOS
- MOS, 75
 - AMR, 76
- multi-carrier, 30, 35, 36, 124
- multi-hop, 52, 86, 87
 - downlink, 88
 - in FDD, 89
 - in TDD, 90
 - uplink, 88
- MVNO, 154, 159
- Nomadic, 11, 20
- OFCDM, 37, 112
- OFDM, 35, 36, 38, 61, 71, 84, 109, 112, 113, 124, 130, 202, 204
 - PAPR, 38, 39, 124
- packet scheduling, 47
- packet switched, 14, 15, 45, 50, 72, 104, 133
- PAPR, 38, 39, 111, 124, 135
- path loss, 51, 87, 102
- PDC, 17, 59, 100, 191
- peer-to-peer, 15
- PHS, 12, 81, 142
 - flat rate, 165
 - transmission rate, 165
- PQoS, 75, 172
 - video, 77
- QPSK, 31, 61, 105, 107, 108, 111, 112
- reciprocity, 13
- revenue, 159, 165, 167, 168, 170, 172, 173, 182
 - flow, 159
- services, 162–172, 182, 189
 - access focused, 160
 - data
 - infotainment, 166
 - LBS, 170
 - MMS, 167
 - mobile internet, 164
 - mobile internet, 164
 - portal focused, 160
 - specialised, 161
 - voice, 171
 - Shannon theorem, 49, 59, 66
 - throughput, 103
 - single-carrier, 35
 - supply chain, 128
- TD-CDMA, 12, 20, 35, 127, 179
 - ad hoc mode, 95
 - base station, 120
 - HSDPA, 107
 - joint detection, 71, 125, 126
 - licensing cost, 129
 - operator scenario, 202
 - power control, 46
 - slot allocation, 13
 - slot structure, 147
 - throughput efficiency, 104
 - WCDMA coexistence, 122
- TDD, 12
 - ad hoc networking, 95
 - multi-hop, 89
 - overlay, 91
 - power control, 46
 - reciprocity, 13
 - resource allocation, 13
 - smart antennas, 66
 - transmission diversity, 40
- TDMA, 17, 68, 69, 72, 84, 100
- topology
 - macro-cell, 81
- traffic, 13, 14, 47, 49, 82, 142, 145, 146, 191, 193, 200, 202
 - asymmetry, 164, 166, 167, 169, 171, 172
 - data, 7, 163
 - downlink and uplink, 16, 108
 - profiles, 15
 - trunking efficiency, 49
 - voice, 7, 14, 163
- Turbo codes, *see* channel coding
- value chain, 159–162
- VoIP, 14, 47, 172
 - Skype, 48
 - wireless, 47

- WAP, 9, 15
- WCDMA, 12, 20, 35, 46, 178
 - base station, 120
 - device volume, 127
 - HSDPA, 72, 104, 112
 - licensing cost, 129
 - operator scenario, 199
 - processing requirements, 126
 - TD-CDMA coexistence, 122
 - throughput efficiency, 104
 - transmission rate, 165
- WiMAX, 20, 35, 72, 95, 104, 108, 130, 144, 179
 - base station, 120, 133
 - operator scenario, 205
 - pre-WiMAX, 135, 137
- wireless LAN, 19, 20, 86, 113, 130, 131, 150, 179
 - hybrid networking, 87
 - hybrid with WCDMA, 132
 - operator scenario, 206
 - throughput, 113