

# Index

## A

- Acquisition, 60, 93–96, 98–100, 114, 131, 151, 153, 159, 163, 170–172, 243, 256, 268, 283, 294, 296, 344, 346, 348, 350, 351, 378, 436, 553, 624
- Active hydrogen maser (AHM), 307, 388, 392
- Adaptive coding and modulation (ACM), 538, 548, 574, 577–579
- Air traffic management, 418, 495, 631
- Antenna systems, 573
- Atmosphere turbulence, 231–238
- Automatic repeat request (ARQ), 643, 644, 745

## B

- Bandwidth allocation, 15, 518–523, 527, 530, 532, 587, 664, 668
- Baseline estimation, 377–380, 384
- Bit-true signal simulator (BTSS), 447, 449, 451, 453, 455, 457, 459
- Binary offset carrier (BOC), 242, 247, 292, 341, 450

## C

- Carrier frequency offsets, 600, 602
- Carrier pairing, 536–540, 546–549, 551
- C-band, 63, 64, 66–68, 70–73, 75–77, 143
- Channel estimation, 278
- Channel selectivity, 600
- Clock, 64, 71, 113–115, 123, 133
- Clock stability, 218, 392, 398
- Common-view, 218–220, 223, 390–392
- Communication networks 8, 199, 358, 483, 492
- Communications, 8–10, 13, 15, 26, 27, 31, 32
- Context aware, 48
- Continuity of service, 314, 317, 404–406

- Convergence, 41–44, 46–48, 61, 212
- Co-operation, 141, 571
- Cooperative communication, 561, 562
- Cross ambiguity function (CAF), 153

## D

- Differential synthetic aperture radar interferometry (DIFSAR), 20
- Distance learning, 657, 658
- Delay locked loop (DLL), 154, 171, 175, 176, 178, 255, 275, 277
- Digital video broadcasting (DVB), 539, 685, 691, 703

## E

- EHF band, 685, 689, 701
- Ephemeris, 179, 185, 187, 190–192, 195, 219, 342, 392, 484
- Erasure codes, 644, 651, 655, 656
- European remote sensing satellite (ERS), 20, 22

## F

- Field testing and validation, 461
- Filtered multitone (FMT), 602–609
- Flower constellations, 589, 592, 594
- Full operation capability (FOC), 329

## G

- Galileo joint undertaking (GJU), 82, 142, 356, 357, 479
- Geophysical monitoring, 369, 371, 373, 375, 377, 379, 381, 383 (only in chapter headings)
- Geostationary payload, 717
- Giove-A (Galileo in orbit validation element A), 134, 138, 241, 242, 249, 251, 256, 285, 291, 294, 299
- GNSS based attitude determination, 200, 201, 209, 210
- Graphical user interface, 241, 244

**H**

High altitude platform (HAP), 199, 200, 517  
 High gain antenna, 283, 284, 286, 290, 291  
 High precision services, 186, 482–484, 487, 493  
 High precision systems, 481–483  
 Hybrid satellite/terrestrial networks, 667

**I**

Integral satcom initiative, 629  
 Integrated wireless network, 741  
 Integration, 12, 13, 22, 25, 41, 42, 44–46  
 Integrity, 78, 89, 111, 259, 262, 269, 322, 323, 334, 336, 337, 364, 403, 409, 498  
 Interference mitigation, 266, 268, 271, 319  
 Interferometry, 20, 98, 589  
 Interpolation techniques, 187, 191, 195  
 Intersatellite link, 94  
 IOV (In-orbit-validation) phase, 110, 143, 215, 259, 329, 356, 400  
 Italian sical system, 3  
 Iterative demapping and decoding, 703

**K**

Kalman filter, 465, 466, 470, 485, 486  
 Kalman filtering, 327, 419, 485  
 Ku-band, 574, 575, 580, 583, 586–587

**L**

Land monitoring, 52  
 Laser retro reflector (LRR), 118, 147  
 Layerless, 42, 48, 49  
 Linked common view time transfer (LCVTT) technique, 211, 218  
 Location based services, 86, 88, 142, 358, 618

Low multipath antennas, 209

**M**

Minimum distance, 35, 521, 524  
 Mobile communications, 10, 48, 630  
 Mobile environment, 573–578  
 Multi objective programming (MOP), 518  
 Multi application, 432  
 Multipath mitigation, 325–327  
 Multi-star satellite network, 535

**N**

Network centric operation (NCO), 3, 5, 10  
 Network enabled capabilities (NEC), 5, 10, 18  
 Next generation system architecture, 513

**O**

OFDM (orthogonal frequency division multiplex), 599–602, 609  
 Open service, 151, 261, 292, 358, 375  
 Open-loop mode, 231  
 Optical links, 94  
 Orbit determination, 147, 216, 751

**P**

Partial correlation, 294, 295, 301  
 Passive hydrogen maser (PHM), 71, 113, 133, 134  
 Payload, 70, 71, 117, 123, 124, 129, 143, 431, 514, 546, 718, 720  
 Payload architecture, 111, 535  
 Phase-locked mode, 231  
 PLL (Phase locked loop), 171, 173, 174, 273, 286, 293  
 Polar constellations, 589  
 Positioning sensors, 461  
 Precise time technology, 303–311  
 Pre-distortion, 535, 708  
 Pseudorange, 171, 179, 186, 268, 424  
 Public-private-partnership (PPP), 355

**Q**

Quality of service (QoS), 16, 515,  
517, 532, 580, 581, 667

**R**

Radio resource management (RRM),  
38  
Railway environment, 324, 325,  
468, 584  
Receivers design, 447  
Reconfigurability, 553, 554  
Remote laboratory management, 657  
Resource allocation, 26, 668, 670  
Ricean fading, 634, 635, 639  
Road applications, 613  
Rubidium atomic frequency standard  
(RAFS), 17, 133, 134

**S**

Safety, 10, 53, 55, 59, 83, 92, 119,  
314, 317, 408  
Safety of life, 261–263, 314, 317, 318,  
322, 358, 475, 487  
Satellite based augmentation system  
(SBAS), 401  
Satellite communications, 199, 431,  
556, 578, 586, 599, 630, 631, 633,  
688, 691, 717  
Satellite navigation, 19, 43, 51–53,  
79, 133  
Search and rescue, 65, 82, 84, 144  
Search and rescue transponder  
(SART), 114, 143  
Sensing systems, 27–29  
Sensors measurements, 419, 422  
Signal monitoring, 266, 289  
Signal validation, 243, 248  
Small baseline subset (SBAS), 20  
Software radio, 553–556, 558, 559  
Software-based approach, 341  
Space based augmentation systems  
(SBAS), 323, 357

Space-distributed multisatellite  
constellations, 93  
Star satellite network, 535  
Stratospheric winds, 199  
Surveillance system, 418  
Switch and stay combing (SSC)  
diversity, 633  
Synchronization, 117, 215, 218,  
221–223, 366, 392, 393,  
398, 399  
Synthetic aperture radar (SAR), 724  
System integration and verification,  
331

**T**

TCP-IP, 657, 741  
Temporal outages, 199  
Test and validation, 246, 397  
Test user receivers, 64, 271  
Testing of applications, 362  
Time synchronization, 213, 215,  
308, 364  
Timekeeping, 222, 304, 305  
Toolset, 284, 287, 402, 403  
Tracking, 171, 173–179, 243, 251,  
268, 274  
Trials campaign, 617, 623  
Turbo delay lock loop (TurboDLL),  
273

**U**

Unscented filter, 751, 755, 760

**V**

VHF, 81, 85, 86, 89, 92, 482

**W**

Walker constellations, 590, 593–595  
W-band, 46, 431, 718, 719, 723, 724  
Wide-lane (EWL) linear combination,  
375  
Wimax, 418, 488, 743, 745, 748

# Signals and Communication Technology

---

(continued from page ii)

## **Digital Television**

A Practical Guide for Engineers  
W. Fischer ISBN 3-540-01155-2

## **Speech Enhancement**

J. Benesty (Ed.)  
ISBN 3-540-24039-X

## **Multimedia Communication Technology**

Representation, Transmission  
and Identification of Multimedia Signals  
J.R. Ohm ISBN 3-540-01249-4

## **Information Measures**

Information and its Description in Science  
and Engineering  
C. Arndt ISBN 3-540-40855-X

## **Processing of SAR Data**

Fundamentals, Signal Processing,  
Interferometry  
A. Hein ISBN 3-540-05043-4

## **Chaos-Based Digital Communication Systems**

Operating Principles, Analysis Methods,  
and Performance Evaluation  
F.C.M. Lau and C.K. Tse  
ISBN 3-540-00602-8

## **Adaptive Signal Processing**

Application to Real-World Problems  
J. Benesty and Y. Huang (Eds.)  
ISBN 3-540-00051-8

## **Multimedia Information Retrieval and Management Technological**

Fundamentals and Applications D. Feng,  
W.C. Siu, and H.J. Zhang (Eds.)  
ISBN 3-540-00244-8

## **Structured Cable Systems**

A.B. Semenov, S.K. Strizhakov, and  
I.R. Suncheley  
ISBN 3-540-43000-8

## **UMTS**

The Physical Layer of the Universal Mobile  
Telecommunications System  
A. Springer and R. Weigel  
ISBN 3-540-42162-9

## **Advanced Theory of Signal Detection**

Weak Signal Detection in Generalized  
Observations  
I. Song, J. Bae, and S.Y. Kim  
ISBN 3-540-43064-4

## **Wireless Internet Access over GSM and UMTS**

M. Taferner and E. Bonek  
ISBN 3-540-42551-9