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Satellite

Digital
Communication

Satellite

Engineering

Communica

tion

Systems E

ngineerin

g

A "must-have" book

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Satellite

*for wireless
communication*

*engineers, this guide
strengthens*

*knowledge of Code
Division Multiple
Access (CDMA)*

*technology, and
builds an*

*understanding of the
technical details and
engineering design
principles behind the*

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Satellite
Communication
Systems
Engineering

new IS-95 digital cellular system standard. Through 2,000 equations and 700 figures and tables, the book helps practicing cellular engineers better understand the technical elements associated with the CDMA system, and how they are applied

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Satellite

to the IS-95 standard.

Provides an

invaluable, detailed

and up-to-date

coverage of

atmospheric effects

and their impact on

satellite

communications

systems design and

performance.

Significant progress

has been made in the

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last decade in the understanding and modelling of propagation effects on radio wave propagation in the bands utilized for satellite communications.

This book provides a comprehensive description and analysis of all

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atmospheric effects of concern for today's satellite systems, and the tools necessary to design the links and to evaluate system performance. This book will serve as an excellent reference to communications engineers, wireless network and system engineers, system

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Satellite

*designers and
graduate students in
satellite*

*communications and
related areas. Key*

*features: Provides the
state of the art in*

communications

satellite link design

and performance

from the practicing

engineer perspective

– concise

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Satellite

*descriptions, specific
procedures and*

comprehensive

solutions Contains

the calculations and

tools necessary for

evaluating system

performance Provides

a complete evaluation

of atmospheric

effects, modelling and

prediction Focuses on

the satellite free-

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space link as the primary element in the design and performance for satellite

communications, and recognizes the importance of free-space considerations such as atmospheric effects, frequency of operation and adaptive mitigation

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*techniques a
solutions manual is
available directly*

from the author

(lippolit@gwu.edu)

Revisions to 5th

Edition by: Zhili Sun,

University of Surrey,

UK New and updated

edition of this

authoritative and

comprehensive

reference to the field

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Satellite

of satellite

communications

engineering Building

on the success of

previous editions,

Satellite

Communications

Systems, Fifth

Edition covers the

entire field of satellite

communications

engineering from

orbital mechanics to

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Satellite

*satellite design and
launch, configuration*

and installation of

earth stations,

including the

implementation of

communications links

and the set-up of the

satellite network. This

book provides a

comprehensive

treatment of satellite

communications

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systems engineering

and discusses the

technological

applications. It

demonstrates how

system components

interact and details

the relationship

between the system

and its environment.

The authors discuss

the systems aspects

such as techniques

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*enabling equipment
and system*

Communication

dimensioning and

Systems

state of the art

Engineering

technology for

satellite platforms,

payloads and earth

stations. New features

and updates for the

fifth edition include:

More information on

techniques allowing

service provision of

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Satellite

multimedia content

Extra material on

techniques for

broadcasting,

including recent

standards DVB-RCS

and DVB-S2 (Digital

Video Broadcasting

-Return Channel

Satellite and -Satellite

Version 2) Updates

on onboard

processing By

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Satellite
Communication
Systems
Engineering

*offering a detailed
and practical
overview, Satellite
Communications*

*Systems continues to
be an authoritative
text for advanced
students, engineers
and designers
throughout the field
of satellite
communications and
engineering.*

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*The first edition of
Satellite*

Communication

Systems Engineering

(Wiley 2008) was

written for those

concerned with the

design and

performance of

satellite

communications

systems employed in

fixed point to point,

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*Satellite
Communication
Systems
Engineering*

*broadcasting, mobile,
radio navigation, data
relay, computer
communications, and
related satellite based
applications. This
welcome Second
Edition continues the
basic premise and
enhances the
publication with the
latest updated
information and new*

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Satellite

technologies

developed since the

publication of the

first edition. The book

is based on graduate

level satellite

communications

course material and

has served as the

primary text for

electrical engineering

Masters and Doctoral

level courses in

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Satellite

satellite

*communications and
related areas.*

Introductory to

*advanced engineering
level students in
electrical,*

*communications and
wireless network
courses, and*

*electrical engineers,
communications
engineers, systems*

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engineers, and

wireless network

engineers looking for

a refresher will find

this essential text

invaluable.

Introduction to

Satellite

Communication

Satellite

Communications

Payload and System

Satellite

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***Communications
Systems Engineering***

Satellite

***Communications
Engineering***

Satellite

Communications

Systems Engineering

Atmospheric Effects,

Satellite Link Design

and System

Performance John

Wiley & Sons

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Digital

Communications:

Theory, Techniques

and Applications 2e is

written for students of

undergraduate degree

programs in

engineering for a

course on digital

communication.

Satellite

Communications and

Navigation Systems

publishes the

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Satellite
Communication
Systems
Engineering
proceedings of the
2006 Tyrrhenian

International

Workshop on Digital
Communications. The
book focuses on the
integration of
communication and
navigation systems in
satellites.

Satellites are
increasingly used for
global
communications, as

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Satellite

Communication

well as for radio and television transmissions. With the growth of mobile communications, and of digital technology, the use of satellite systems is set to expand substantially and already all students of electronics or communications engineering must

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Satellite

Communication

Systems

Engineering

study the subject.

This book steers a middle path between offering a basic understanding of the process of communication by satellite and the methodology used; and the extensive mathematical analysis normally adopted in similar texts. It presents the basic

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Systems

Engineering

concepts, using as much mathematical content as is necessary to make the process understandable. The principles introduced are backed up by examples of actual applications showing how professional systems engineers have achieved the required system

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performance capabilities. The

practical systems

chosen are

representative of

modern day

applications and

comprise an

international

communications

system, an

international maritime

system and a regional

system.

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Satellite
Engineering 885.77, a
Communication
System, April 30-May
4, 1984 : Lecture
Notes

Review Of Digital
Communication
Communication
Engineering
Principles
Digital Satellite
Communications
Systems and
Technologies

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Satellite

**Satellite
Communications**

Systems &

Technology

Since the

publication of the
best-selling first
edition of The

Satellite

Communication

Applications

Handbook, the

satellite

communications

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Satellite

Communication

Systems

Engineering

industry has experienced explosive growth. Satellite radio, direct-to-home satellite television, satellite telephones, and satellite guidance for automobiles are now common and popular consumer products. Similarly, business, government, and

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Satellite

defense

organizations now

rely on satellite

communications for

day-to-day

operations. This

second edition

covers all the latest

advances in satellite

technology and

applications

including direct-to-

home broadcasting,

digital audio and

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Satellite

video, and VSAT
networks. Engineers

get the latest

technical insights

into operations,

architectures, and

systems

components.

This is the first book

primarily about the

satellite payload of

satellite

communications

systems. It

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**Satellite
Communication
Systems
Engineering**

represents a unique combination of practical systems engineering and communications theory. It tells about the satellites in geostationary and low-earth orbits today, both the so-called bent-pipe payloads and the processing payloads. The on-

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Satellite

Communication

Systems

Engineering

orbit environment, mitigated by the spacecraft bus, is described. The payload units (e.g. antennas and amplifiers), as well as payload-integration elements (e.g. waveguide and switches) are discussed in regard to how they work, what they do to the

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Satellite
Communication
Systems

signal, their
technology,
environment

sensitivity, and

specifications. At a

higher level are

discussions on the

payload as an entity:

architecture

including

redundancy;

specifications--what

they mean, how they

relate to unit

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Satellite

specifications, and
how to verify; and s

pecification-

compliance analysis

("budgets") with

uncertainty. Aspects

of probability theory

handy for

calculating and

using uncertainty

and variation are

presented. The

highest-level

discussions, on the

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Satellite

**end-to-end
communications**

system, start with a

practical

introduction to

physical-layer

communications

theory. Atmospheric

effects and

interference on the

communications

link are described. A

chapter gives an

example of

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Satellite

**optimizing a
multibeam payload**

via probabilistic

analysis. Finally,

practical tips on

system simulation

and emulation are

provided. The

carrier frequencies

treated are 1 GHz

and above.

Familiarity with

Fourier analysis will

enhance

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Satellite

**understanding of
some topics.**

**References are
provided throughout
the book for readers
who want to dig
deeper. Payload
systems engineers,
payload proposal
writers, satellite-
communications
systems designers
and analysts, and
satellite customers**

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Communication

Systems

Engineering

will find that the book cuts their learning time. Spacecraft-bus systems engineers, payload unit engineers, and spacecraft operators will gain insight into the overall system.

Students in systems engineering, microwave engineering,

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Satellite

**communications
theory, probability
theory, and**

communications

simulation and

modelling will find

examples to

supplement

theoretical texts.

Discusses orbits,

earth-satellite

geometry, launch

vehicles, radio-

frequency link,

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Satellite

**transponders, earth
stations, and**

Communication

interference

Satellite
Engineering

Communications

Systems and

Technology--Europe

, Japan, Russia

Military and Civil

Applications

Satellite

Communications

Telemetry Systems

Engineering

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Satellite

An undeniably
rich and

thorough guide
to satellite

communication
engineering,

Satellite

Communication

Engineering,

Second Edition

presents the

fundamentals of

information

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Satellite
Communication
Systems
Engineering

communications
systems in a
simple and
succinct way.

This book
considers both
the engineering
aspects of
satellite
systems as well
as the
practical
issues in the

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Satellite

Communication

Systems

Engineering

broad field of
information
transmission.

Implementing
concepts
developed on an
intuitive,
physical basis
and utilizing a
combination of
applications
and performance
curves, this

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Satellite

book starts off
with a

Communication

Systems
progressive

Engineering
foundation in

satellite

technology, and

then moves on

to more complex

concepts with

ease. What's

New in the

Second Edition:

The second

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Satellite

edition covers

Communication

satellite and

Systems

Earth station

Engineering

design; global

positioning

systems;

antenna

tracking; links

and

communications

systems; error

detection and

correction;

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Satellite

Communication

Systems

Engineering

data security;
regulations and
procedures for
system

modeling;

integration;

testing; and

reliability and

performance

evaluation.

Provides

readers with

the systems

Download File

PDF Digital

Satellite

building blocks

of satellite

transponders

and Earth

stations, as

well as the

systems

engineering

design

procedure

Includes the

tools needed to

calculate basic

Page 50/182

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Satellite

orbit

characteristics

such as period,

dwelt time,

coverage area,

propagation

losses; antenna

system features

such as size,

beamwidth, aper

ture-frequency

product, gain,

tracking

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Satellite

control; and
system

Communication
Systems

requirements
such as power,

availability,

reliability,

and performance

Presents

problem sets

and starred

sections

containing

basic

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Satellite

mathematical

development

Communication

Systems

Details recent

developments

enabling

digital

information

transmission

and delivery

via satellite

Satellite

Communication

Engineering,

Page 53/182

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Satellite

Communication

Systems

Engineering

Second Edition
serves as a
textbook for
students and a
resource for
space agencies
and relevant
industries.

**The book covers
all the
fundamentals of
satellites,
ground control**

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Satellite

systems, and

Communication

earth stations,

Systems

considering the

Engineering

design and

operation of

each major

segment. You

gain a

practical

understanding

of the basic

construction

and usage of

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Satellite

commercial

Communication

satellite

Systems

networks

Engineering

parts of a

satellite

system

function, how

various

components

interact, which

role each

component

plays, and

Download File

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Satellite

which factors
are the most
critical to
success."

Engineering

Satellite

Communication

is a special

technology in

the field of

Electronic

Communication

Systems. A

Graduate

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Satellite

engineering

Communication

students with

Systems

Electronics and

Engineering

Communication

Engineering

will find this

book useful to

understand the

concepts of

satellite

communication.

This book deals

with the

Download File

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Satellite

technology and

Communication

Systems

Engineering

treatment of

the subject.

Analysis and

design of

satellite

communication

equipment is

also treated to

the extent

required for

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Satellite

the engineering

graduates. It

is very useful

reference for

the candidates

preparing for

higher studies

and competitive

examinations.

Mathematical

analysis is

presented

wherever

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Satellite

required and

Communication

concepts are

Systems

well

Engineering

illustrated. It

also deals with

latest

technological

developments in

the related

fields

Highlighting

satellite and

earth station

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Satellite

design, links
and

Communication

Systems

Engineering
systems, error

detection and

correction, and

regulations and

procedures for

system

modeling,

integrations,

testing, and

evaluation,

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Satellite
Communication
Systems
Engineering

Satellite
Communication
Systems
Engineering
provides a
simple and
concise
overview of the
fundamental
principles
common to
information
communications.
It

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Satellite
Digital
Communication
Systems
and Satellite
Systems Engineering

Satellite

Communications

Network Design

and Analysis

Novel Approach

to the Design

of an All

Digital

Aeronautical

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Satellite
Communication
Systems

Satellite

Broadcast

Systems

Engineering

This

authoritative

book provides a

thorough

understanding

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Satellite

Communication

Systems

Engineering

***of the
fundamental
concepts of
satellite
communications
(SATCOM)
network design
and
performance
assessments.
You find
discussions on a***

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Satellite

**wide class of
SATCOM**

**networks using
satellites as**

core

components, as

well as coverage

key applications

in the field. This

in-depth

resource

presents a broad

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range of critical topics, from geosynchronous Earth orbiting (GEO) satellites and direct broadcast satellite systems, to low Earth orbiting (LEO) satellites, radio standards

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Satellite

and

protocols. This

invaluable

reference

explains the

many specific

uses of satellite

networks,

including small-

terminal

wireless and

mobile

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Satellite
**communications
systems.**

Communication
Systems
Engineering
**Moreover, this
book presents
advanced topics
such as satellite
RF link
analyses,
optimum
transponder
loading, on-
board**

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Satellite

Communication

Systems

Engineering

***processing,
antenna
characteristics,
protected
systems,
information
assurance, and
spread
spectrums. You
are introduced
to current and
future SATCOM***

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Satellite

***systems and find
details on their
performance
supportabilities.***

***This cutting-
edge book also
presents trends
in multimedia
satellite
applications and
IP services over
satellites.***

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Satellite

***The revised and
updated sixth
edition of em sty
le="mso-bidi-***

font-style:

normal;"Satellit

e

Communication

s Systems

contains

information on

the most recent

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Satellite

***advances related
to satellite***

communications

systems,

technologies,

network

architectures

and new

requirements of

services and

applications.

The authors -

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Satellite

***noted experts on
the topic - cover
the state-of-the-
art satellite***

***communication
systems and
technologies
and examine the
relevant topics
concerning
communication
and network***

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Satellite
Communication
Systems
Engineering

***technologies,
concepts,
techniques and
algorithms. New
to this edition is
information on
internetworking
with the
broadband
satellite
systems, more
intensive***

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Satellite

***coverage of Ka
band***

Communication

technologies,

Systems

Engineering

***GEO high
throughput***

satellite (HTS),

LEO

constellations

and the

potential to

support the

current new

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Satellite

Communication

Internet

services as well

as future

developments

for global

information

infrastructure.

The authors

offer details on

digital

communication

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Communication
Systems
Engineering

***systems and
broadband
networks in
order to provide
high-level
researchers and
professional
engineers an
authoritative
reference. The
companion
website provides***

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Satellite
Communication
Systems
Engineering

***slides for
instructors to
teach and for
students to***

***learn. In
addition, the
book is designed
in a user-
friendly format.***

***Broadband
Satellite
Communication***

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Satellite
Communication
Systems
Engineering

***s for Internet
Access is a
systems
engineering
methodology for
satellite
communication
networks. It
discusses the
implementation
of Internet
applications***

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Satellite

***that involve
network design***

issues usually

addressed in

standard

organizations.

Various

protocols for IP-

and ATM-based

networks are

examined and a

comparative

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Satellite

Communication

Systems

Engineering

performance evaluation of different alternatives is described. This methodology can be applied to similar evaluations over any other transport medium.

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Satellite

Writing a comprehensive book on satellite communications requires the command of many technical disciplines and the availability of up-to-date information on international re

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Satellite

***commendations,
system***

architectures,

and equipment

stand ards. It is

therefore

necessary to

involve many

authors, each

possessing a

good level of

knowledge in a

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Satellite

Communication

Systems

Engineering

***particular
discipline. The
problem of
using a coherent
and
unambiguous
set of
definitions and
basic terms has
been solved by
including in the
book all the***

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Satellite
Communication
Systems
Engineering

***background
information
needed for
understanding
satellite
communication
systems, without
any major
reference to
other textbooks
specializing in
particular***

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Communication
Systems
Engineering

disciplines. The obvious consequence of this approach has been the large size of the book, with the advantages, however, of practically complete independence

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Communication
Systems
Engineering

from other books, more systematic discussion of the subject matter, and better readability.

After the required background information,

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Satellite

***emphasis has
been placed on
the discussion
of techniques***

***and system
design criteria
rather than on
specific***

***equipment
implementation
or description of
particular***

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Satellite
Communication
Systems
Engineering

systems. The book may be divided in five parts as follows:

- The first five chapters provide most of the required background information. • Chapter 6 is an introductory***

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Satellite
Communication
Systems
Engineering

***outline of
satellite
communication
systems. •***

***Chapters 7 to 13
deal with the
various aspects
of technical
system design. •***

***Chapter 14
discusses
system***

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Satellite

economics. •

Chapter 15

**provides a brief
insight into**

some

foreseeable

**future develop
ments of**

satellite

communications

•

Systems,

Page 93/182

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***Techniques and
Technology
Atmospheric
Effects, Satellite
Link Design and
System
Performance
Satellite
Communication
Systems Design
Laser Satellite
Communication***

Page 94/182

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Satellite

**Extensive revision
of the best-selling
text on satellite
communications**

**— includes new
chapters on
cubesats, NGSO
satellite systems,
and Internet
access by satellite**

**There have been
many changes in
the thirty three**

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Satellite

**years since the
first edition of**

Satellite

**Communications
was published.**

**There has been a
complete**

**transition from
analog to digital
communication**

**systems,
with analog
techniques**

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Satellite

replaced by digital
modulation and

digital signal

processing. While

distribution of

television

programming

remains the

largest sector of

commercial

satellite

communications,

low earth orbit

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Satellite

**constellations of
satellites for**

Internet access

are set to

challenge that

dominance. In the

third edition,

chapters one

through three

cover topics that

are specific to

satellites,

including orbits,

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Satellite
Communication
Systems
Engineering

**launchers, and
spacecraft.**

**Chapters four
through seven
cover the
principles of
digital
communication
systems, radio
frequency
communications,
digital modulation
and multiple**

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Satellite

access

techniques, and

propagation in the

earth's

atmosphere,

topics that are

common to all

radio

communication

systems. Chapters

eight through

twelve cover

applications that

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Satellite

Communication

Systems

Engineering

include non-geostationary satellite systems, low throughput systems, direct broadcast satellite television, Internet access by satellite, and global navigation satellite systems. The chapter on Internet access by

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Satellite

**satellite is new to
the third edition,**

and each of the

**chapters has been
extensively**

**revised to include
the many changes
in the field since**

**the publication of
the second edition
in 2003. Two**

**appendices have
been added that**

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Satellite

Communication

Systems

Engineering

**cover digital
transmission of
analog signals,
and antennas. An
invaluable
resource for
students and
professionals
alike, this book:
Focuses on the
fundamental
theory of satellite
communications**

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Satellite
Communication
Systems
Engineering

**Explains the
underlying
principles and
essential
mathematics
required to
understand the
physics and
engineering of
satellite
communications
Discusses the
expansion of**

Download File

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Satellite

satellite

Communication

communication

Systems

systems in areas

Engineering

such as direct-

broadcast satellite

TV, GPS, and

internet access

Introduces the

rapidly advancing

field of small

satellites, referred

to as SmallSats or

CubeSats

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Provides relevant practice problems based on real-world satellite systems

Satellite Communications is required reading for undergraduate and postgraduate students in satellite communications courses and an

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Satellite

**authoritative
reference for
engineers working
in**

**communications,
systems and
networks, and
satellite**

**operations and
management.**

**For those seeking
a thorough
grounding in**

Download File

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Satellite

modern

communication

engineering

principles

delivered with

unrivalled clarity

using an

engineering-first

approach

Communication

Engineering

Principles: 2nd

Edition provides

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Satellite

Communication

Systems

Engineering

**readers with
comprehensive
background
information and
instruction in the
rapidly expanding
and growing field
of communication
engineering. This
book is well-suited
as a textbook in
any of the
following courses**

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**of study: Telecom
munication Mobile
Communication
Systems
Satellite**

Communication

Optical

Communication

Electronics

Computer

Systems Primarily

designed as a

textbook for

undergraduate

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**programs,
Communication**

**Systems
Engineering**

Principles: 2nd

Edition can also

be highly valuable

in a variety of MSc

programs.

Communication

Engineering

Principles grounds

its readers in the

core concepts and

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**theory required for
an in-depth**

**understanding of
the subject. It also**

**covers many of
the modern,
practical**

**techniques used
in the field. Along
with an overview
of communication
systems, the book
covers topics like**

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time and

frequency

domains analysis

of signals and

systems,

transmission

media, noise in

communication

systems, analogue

and digital

modulation, pulse

shaping and

detection, and

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many others.

Discusses long-term

developments

Addresses

advanced physical

layer techniques

designed for

broadband

communications,

for fixed and

mobile terminals

Considers 4G

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**evolutions and
possible
convergence
between different
technologies**

**With its higher
power and
superior video and
audio quality,**

**Direct Broadcast
Satellite (DBS)**

**communications is
proliferating**

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**worldwide. Many
new DBS systems**

**are evolving and
with the**

**introduction of
HDTV, DBS**

**technology is
predicted to**

**become even
more prevalent.**

**Written by a
leading DBS
authority, this**

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book is required reading for anyone involved in this burgeoning field.

This

comprehensive reference

describes the history and

structure of DBS systems, the

regulatory

environment, the

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subsystems that support it, and the

underlying

compression

technology that

makes it

commercially

feasible. Direct

Broadcast Satellite

Communications

can be read as a

broad overview of

DBS systems or

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can serve as a detailed technical description. In particular, the author thoroughly explains how MPEG compression standards are used to implement modern satellite broadcast systems. You will

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**find complete
information on key
topics such as:**

**International and
FCC regulations
Radio frequency
components of
DBS systems,
including the
shaped reflector
antenna Forward
error correction,
looking at block**

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codes,

interleaving, and

Viterbi decoding

The use of

cryptography for

conditional access

to subscription

services MPEG

system and

transport layer

MPEG-2 video and

audio

compression

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**Connecting
terrestrial systems
and DBS uplinks**

**The Integrated
Receiver Decoder**

**In addition, the
book explores
future**

**developments,
including the
Spaceway and the
Global Broadcast
Service, as well as**

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**the MPEG-4
compression
standards.**

**Numerous case
studies involving
DIRECTV(TM) and
the European DVB
standard appear
throughout the
book. For other
books in this
series, see [http://w
ww.awl.com/cseng](http://www.awl.com/cseng)**

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/wirelessseries/

Cooperative and

Cognitive Satellite

Systems

Communications

and Information

Systems

Satellite

Communication

**Introduces the next
generation of telec
ommunications--la**

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ser satellite comm

unications--and

discusses

opportunities and

business strategies

available with the

new technology.

With The Global

Trends In

Communication

And Data

Networks, Leading

To Idn And Isdn,

There Is A Special

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**Need For A
Comprehensive
Book On Thestate-
Of-The-Art In
Digital
Communication. In
The Absence Of
Such A Reference
Book, Most Of Our
Senior
Professionals And
Academics Find It
Very Hard To Keep
Themselves**

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**Abreast Of The
Recent
Developments
Leading To
Information
Revolution And
Digital Revolution.
The Present
Volume Is An
Attempt To Fill
This Gap.The Book
Consists Of Ten
Chapters, And
Discusses Such**

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**Topics As,
Principles Of
Digital Modulation,
Source Encoding,
Data Transmission
Through Cables
And Optical Fibres,
Digital Radio
Including Satellite
Communication,
Data Networks And
Digital Switching,
Information Theory
And Coding,**

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**Survival Of
Communication
Including Spread
Spectrum
Techniques, And
Future Trends
Including Isdn.
Conceptually The
Chapters Attempt
To Discuss From A
System Point Of
View, A Total
Digital
Communication**

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**Network, E.G., Idn,
And The Total
Range Of Signal
Processing
Techniques Has
Been Presented In
Subsequent
Chapters, Thus
Maintaining A
Continuity Of
Thought From End-
To-End. The Book
Is, Therefore,
Addressed To Both**

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Professionals In Telecommunications

And Senior

Students In This

Area.

Highlighting

satellite and earth

station design,

links and

communication

systems, error

detection and

correction, and

regulations and

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**procedures for
system modeling,**

integrations,

testing, and

evaluation,

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Communication

Engineering

provides a simple

and concise

overview of the

fundamental

principles common

to information

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**Satellite
Communication
Systems
Engineering**

**communications. It
discusses block
and feedback
ciphering; covers
orbital errors;
evaluates multi-
beam satellite
networks;
illustrates bus,
electrical, and
mechanical
systems design;
analyzes system
reliability and**

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Satellite
Communication

availability;

elucidates

reflector/lens,

phased array, and

helical antenna

systems; explores

channel filters and

multiplexers; and

more.

Focusing on the

analysis and design

of satellite

broadcast systems,

this practical book

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Communication

Systems

Engineering

gives you an

integral

understanding of

the essential

engineering

aspects of these

systems, and

provides insight

into the

calculations of

modern digital

broadcasting by

satellite. The book

helps you master

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the basic
technological

principles of

satellite broadcast

systems, giving you

the knowledge you

need to efficiently

design systems for

top performance.

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Engineering
Communications
Systems

Principles and
Applications

Thorough
coverage of
basic digital
communication
system

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principles ensures that readers are exposed to all basic relevant topics in digital communication system design. The use of CD player and JPEG image coding standard as

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examples of systems that employ modern communication principles allows readers to relate the theory to practical systems. Over 180 worked-out examples

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throughout the
book aids
readers in
understanding
basic concepts.

Over 480
problems
involving
applications to
practical
systems such as
satellite

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Systems
Engineering

communications
systems,
ionospheric
channels, and
mobile radio
channels gives
readers ample
opportunity to
practice the
concepts they
have just
learned. With an

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Communication
Systems
Engineering

emphasis on
digital
communications

,
Communication
Systems

Engineering,
Second Edition
introduces the
basic principles
underlying the
analysis and

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design of
communication
systems. In

addition, this

book gives a

solid

introduction to

analog

communications

and a review of

important

mathematical

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Communication
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Engineering

foundation
topics. New
material has
been added on
wireless
communication
systems -- GSM
and
CDMA/IS-94;
turbo codes and
iterative
decoding;

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Satellite
Communication

multicarrier
(OFDM)

Systems
Engineering

systems;
multiple

antenna

systems.

Includes

thorough

coverage of

basic digital

communication

system

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Satellite
Communication
Systems
Engineering

principles --
including source
coding, channel
coding,
baseband and
carrier
modulation,
channel
distortion,
channel
equalization,
synchronization,

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Satellite

and wireless
communication
systems

. Includes basic
coverage of
analog

modulation such
as amplitude
modulation,
phase
modulation, and
frequency
modulation as

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Satellite

well as

demodulation

methods.

Among the

space activities

of the last three

decades

satellite

communications

(SATCOM) has

found the widest

application in

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Satellite
Communication
Systems
Engineering

meeting both
civil and
military
communications
requirements.

Several
international,
regional and
national
SATCOM
systems of
increasing

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Communication

Systems

Engineering

capacity,
capability and
complexity have
been and are
being
implemented
over the years.
The latest
versions are
utilizing such
concepts as spot
beams,

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Communication
Systems
Engineering

processing
transponders in
SS-TDMA and
operations in
different
frequency bands
including the
EHF band. On
the military
side, the United
States of
America, the

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Satellite

United Kingdom,

France and

NATO (the

North Atlantic

Treaty

Organisation)

have been the

only owners and

operators of

military

SATCOM

SATCOM

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Satellite
Communication
Systems
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systems in the
West. The
systems in being
and under
development
use satellites
and ground
terminals with
characteristics
which differ
from the civilian
ones with

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Satellite
Communication
Systems
Engineering

respect to
frequency bands
utilised and
survivability and
interoperability.

The SATCOM
has given the
military users
the potential of
having much-
needed mobility,
flexibility and

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Satellite
Communication
Systems
Engineering

survivability in
strategic and
tactical
communications
for land, sea and
air operations.

It must,
however, be
said particularly
for the military
SATCOM
systems that

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Communication
Systems
Engineering

they have been evolved in big jumps, both in time and capability, each jump involving the deployment of two or three often specially designed large satellites, large expenses and

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rather traumatic
transition

between jumps.

Despite these
undesirable

features these

systems did not
have the

required degree
of survivability
and flexibility.

Annotation This

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Communication

Systems

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cutting-edge,
new resource
clearly presents
introductory
and advanced
concepts in
telemetry
systems (the
technology of
automatic data
transmission
and

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measurement)

Communication

with an

Systems

emphasis on

Engineering

digital

communications

. Geared to both

beginning and

seasoned

engineers,

specific details

of telemetry

systems are

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Satellite

explained within
the context of

Systems

an overall

system. The

book helps

engineers

design

telemetry

systems to meet

a specific bit

error rates, and

perform link

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Communication
Systems
Engineering

analysis for the
design of a
communications
link.

Thorough
coverage of
basic digital
communication
system
principles
ensures that
readers are

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exposed to all basic relevant topics in digital communication system design.

The use of CD player and JPEG image coding standard as examples of systems that employ modern

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allows readers
to relate the
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180 worked-out
examples
throughout the
book aids
readers in

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understanding
basic concepts.

Over 480

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applications to

practical

systems such as

satellite

communications

systems,

ionospheric

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channels, and
mobile radio
channels gives
readers ample
opportunity to
practice the
concepts they
have just
learned. With an
emphasis on
digital
communications

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Communication
Systems

Engineering,
Second Edition
introduces the
basic principles
underlying the
analysis and
design of
communication
systems. In

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Systems
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addition, this book gives a solid introduction to analog communications and a review of important mathematical foundation topics. New material has

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been added on
wireless
communication
systems—GSM
and
CDMA/IS-94;
turbo codes and
iterative
decoding;
multicarrier
(OFDM)
systems;

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Satellite
Communication

multiple
antenna
systems.

Systems
Engineering

Includes

thorough

coverage of

basic digital

communication

system principle

s—including

source coding,

channel coding,

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Communication
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baseband and
carrier
modulation,
channel
distortion,
channel
equalization,
synchronization,
and wireless
communications
. Includes basic
coverage of

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Satellite

analog

Communication

modulation such

as amplitude

modulation,

phase

modulation, and

frequency

modulation as

well as

demodulation

methods. For

use as a

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reference for
electrical
engineers for all
basic relevant
topics in digital
communication
system design.

The Third
Generation
Satellite
Communication
Engineering,

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Communication
Systems
Engineering

Second Edition

Digital Satellite

Communication

S

Communication

Systems

Engineering

*The book provides a
comprehensive study
of satellite*

communications

systems engineering

and provides how

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satellite network elements interact to form communication

required. In-depth, textbook-style

coverage combined with an intuitive, low-math approach

makes this book particularly appealing to all Satellite

Communications professionals at

operational level. The

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*book provides a
comprehensive study
of satellite*

*communications
systems engineering
and provides how
satellite network
elements interact to
form communication
required. Readers will
find detailed
coverage of Satellite
Systems, Digital
Satellite*

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Satellite

*communication,
Propagation of Waves
and the Satellite
Channel, Frequency
Division Multiple
Access, Time Division
Multiple Access, Code
Division Multiple
Access, Fixed and on
Demand Assignment,
Satellite Networking
and the Earth
Station.*

Cooperative and

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*Cognitive Satellite
Communication
Systems provides a
solid overview of the
current research in
the field of
cooperative and
cognitive satellite
systems, helping
users understand
how to incorporate
state-of-the-art
communication
techniques in
innovative satellite*

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*network architectures
to enable the next*

generation of satellite

*systems. The book is
edited and written by*

*top researchers and
practitioners in the*

*field, providing a
comprehensive*

*explanation of
current research that*

*allows users to
discover future*

technologies and

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their applications,

integrate satellite

and terrestrial

systems and services

to create innovative

network

architectures,

understand the

requirements and

possibilities for future

satellite

communications

standards and

protocols, and

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Communication

*evaluate the
feasibility and
practical constraints
involved in the
deployment process.*

*Provides a solid
overview of the
current research in
the field of co-
operative and
cognitive satellite
systems Presents
concepts in
multibeam and*

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*multicarrier joint
processing and high
performance random
access schemes*

*Explains hybrid and
dual satellite*

*systems, cognitive
broadband satellite
systems, spectrum
exploitation, and
resource allocation*

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Communication:

Theory, Techniques

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Service
Broadband Satellite
Communications for
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