1.	Record Nr.	UNINA9910855393303321
	Autore	Morais Douglas H
	Titolo	Key 5G/5G-Advanced Physical Layer Technologies : Enabling Mobile and Fixed Wireless Access / / by Douglas H. Morais
	Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2024
	ISBN	3-031-57426-5
	Edizione	[3rd ed. 2024.]
	Descrizione fisica	1 online resource (360 pages)
	Disciplina	621.3845
	Soggetti	Telecommunication Cooperating objects (Computer systems) Computer networks Communications Engineering, Networks Cyber-Physical Systems Computer Communication Networks
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di contenuto	Introduction -- Mobile and Fixed Wireless Cellular Systems Introduction -- Broadband Wireless Payload: Packet-Switched Data -- Mathematical Tools for Digital Transmission Analysis -- The Mobile Wireless Path -- Digital Modulation: The Basic Principles -- Channel Coding and Link Adaptation -- Multi-Carrier-Based Multiple-Access Techniques -- Multiple Antenna Techniques -- Physical Layer Processing Supporting Technologies -- 5G/5G-Advanced Overview and Physical Layer -- 5G/5G-Advanced Based Fixed Wireless Access -- Conclusion.
	Sommario/riassunto	This third edition of this text covers the key technologies associated with the physical transmission of data on 5G mobile systems. Following an updated overview of these technologies, the author provides a high-level description of 3GPP's mobile communications standard (5G/5G-Advanced) and shows how the key technologies presented earlier facilitate the transmission of very high-speed user data and control data and can provide very low latency for use cases where this is important. In the final chapter, an updated overview and the physical layer aspects of 5G NR enabled Fixed Wireless Access (FWA) networks is

presented. Material in the second edition addressed mainly the key physical layer technologies and features associated with 3GPP Release 15, the first release to support 5G, and Release 16. This edition adds descriptions of some of the technological advancements supported in Releases 17 and 18, the latter being designated by 3GPP as 5G-Advanced. In addition to numerous enhancements of existing features, these releases include new features such as support for 1024-QAM in the downlink in the FR1 band, Reduced Capability (RedCAP) devices, Network Controlled repeaters, operation in the 6 GHz band and above 52.6 GHz, support for broadcast/multicast services, and Non-terrestrial Networks (NTNs). Additionally, a look ahead at some of the planned features and enhancements of Release 19 is provided. This textbook is intended for graduate and upper undergraduate engineering students and practicing engineers and technicians who have an interest in 3GPP's 5G enabled mobile and or FWA networks and want to acquire, where missing, the necessary technology background in order to understand 3GPP's physical layer specifications and operation. Provided are working problems and helpful examples throughout the text. Presents key 3GPP 5G/5G-Advanced physical layer technologies in a technically coherent fashion; Covers digital modulation, LDPC/polar coding, and multi-carrier based multiple-access antenna techniques; Provides an overview of 5G higher-layer protocols and an introduction to the 5G physical-layer structure. .