



Figure 5: Throughput Vs Sources



Figure 6: Delay Vs Sources

When the traffic sources are increased, more stations will contend for the channel and hence the utilization of channel will be decreased. It can be seen from Figure 5, the channel utilization gradually decreases a little when the number of sources is increased. It shows that DMAC has better utilization than the TDMA and MC-11 protocols.

Figure 6 shows the throughput obtained with the proposed DMAC protocol and other MAC protocols. From the figure, it can be seen that, the throughput of both TDMA and MC-11 are decreased, when the sources are increased. But it shows that the throughput is more and increases for DMAC, because it supports multiple users.

Figure 7 shows the delay of traffic occurred, when the sources are varied. From the figure, it can be observed that the delay increases gradually when the sources are increased. It shows that the delay of DMAC is significantly less than other protocols.

V. CONCLUSION

In this paper, we have developed a dynamic MAC protocol for WCDMA wireless multimedia networks. In this design, we have combined the merits of the CSMA, TDMA MAC protocols with WCDMA systems to improve the throughput of the multimedia WLAN in a cellular environment. We have used three MAC protocols adaptively, to handle both the low and high data traffic of the mobile users. It uses multiple slots per frame allowing multiple users to transmit simultaneously using their own CDMA codes. Hence our dynamic MAC protocol for WCDMA networks avoids congestion and improves the

channel utilization and throughput of the bulky multimedia flows. By simulation results, we have shown that our proposed MAC protocol achieves high channel utilization and improved throughput with reduced average delay under low and high data traffic. As a future work, we will include a power control mechanism to this protocol.

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**Erik Dahlman, Stefan Parkvall, Johan
Skold, Per Beming**



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Digital-IF SiGe BiCMOS Transmitter IC for 3G WCDMA Handset Application Vincent Wing-Ching Leung,2004

Computer Networks and Information Technologies Vinu V Das,Janahanlal Stephen,Yogesh Chaba,2011-03-07 This book constitutes the refereed proceedings of the Second International Conference on Advances in Communication Network and Computing CNC 2011 held in Bangalore India in March 2011 The 41 revised full papers presented together with 50 short papers and 39 poster papers were carefully reviewed and selected for inclusion in the book The papers feature current research in the field of Information Technology Networks Computational Engineering Computer and Telecommunication Technology ranging from theoretical and methodological issues to advanced applications *Evaluation of HSDPA and LTE* Markus Rupp,Sebastian Caban,Christian Mehlführer,Martin Wrulich,2011-12-12 This book explains how the performance of modern cellular wireless networks can be evaluated by measurements and simulations With the roll out of LTE high data throughput is promised to be available to cellular users In case you have ever wondered how high this throughput really is this book is the right read for you At first it presents results from experimental research and simulations of the physical layer of HSDPA WiMAX and LTE Next it explains in detail how measurements on such systems need to be performed in order to achieve reproducible and repeatable results The book further addresses how wireless links can be evaluated by means of standard compliant link level simulation The major challenge in this context is their complexity when investigating complete wireless cellular networks Consequently it is shown how system level simulators with a higher abstraction level can be designed such that their results still match link level simulations Exemplarily the book finally presents optimizations of wireless systems over several cells This book Explains how the performance of modern cellular wireless networks can be evaluated by measurements and simulations Discusses the concept of testbeds highlighting the challenges and expectations when building them Explains measurement techniques including the evaluation of the measurement quality by statistical inference techniques Presents throughput results for HSDPA WiMAX and LTE Demonstrates simulators at both link level and system level Provides system level and link level simulators for WiMAX and LTE on an accompanying website https://www.nt.tuwien.ac.at/downloads/featured_downloads This book is an insightful guide for researchers and engineers working in the field of mobile radio communication as well as network planning Advanced students studying related courses will also find the book interesting *VLSI Modulation Circuits - Signal Processing, Data Conversion, and Power Management* Hongjiang Song,2014-05-24 This is a textbook developed for a VLSI circuit design course series EEE598 that the author has been offering in the Schools of Engineering at Arizona State University The materials are organized into eighteen special topics covering the principles the circuit design techniques and the applications of VLSI modulation in signal processing data conversion power amplification and power management *Modern Telemetry* Ondrej Krejcar,2011-10-05 Telemetry is based on knowledge of various disciplines like Electronics Measurement Control and Communication along with their

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CMOS Low Noise Amplifiers for Single and Multiband Applications: A Comprehensive Design Approach Norlaili Mohd Noh, Farshad Eshghabadi, Arjuna Marzuki, 2023-10-11 This book provides comprehensive knowledge aimed at practicing integrated circuit design engineer or researcher to learn and design a low noise amplifier LNA for single and multiband applications The content is structured in a way so that even a beginner can follow the design method easily This book features the following characteristics different types of LNA designs with key building blocks are discussed and detailed analysis is given for each LNA design which covers from the fundamental and principal knowledge to the justification of the design approach Detailed design approaches are using 180 nm and 130nm CMOS technologies purposely presented in this manner to give exposure to the design of LNA under different technologies The LNAs in this book are designed for GSM WCDMA and WLAN standards but the same method can be used for other frequencies of operation Comprehensive analyses on the extreme or corner condition effects are highlighted Besides detailed derivation of equations relating to the parameters of the LNA s performance metrics help LNA designers in understanding how the performance metrics of the LNA can be optimized to meet the desired specification Electromagnetic analyses using Sonnet an electromagnetic tool able to replace the conventional post layout simulation with resistance and capacitance parasitic extraction for more accurate frequency performance prediction are presented The electromagnetic method is proposed to be used in the LNA design as it can accurately predict the LNA s performance before tape out for first pass fabrication MATLAB codes are provided to generate important S parameters and noise figure values

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interest to researchers in industry and academia working in the areas of circuit design integrated circuits and RF and microwave as well as anyone with an interest in monolithic wireless device development Signal Processing for Wireless Communication Systems H. Vincent Poor,Lang Tong,2006-01-19 Signal Processing for Wireless Communication Systems brings together in one place important contributions and up to date research results in this fast moving area The Contributors to this work were selected from leading researchers and practitioners in this field The book s 18 chapters are divided into three areas systems Networks and Implementation Issues Channel Estimation and Equalization and Multiuser Detection The Work originally published as Volume 30 Numbers 1 3 of the Journal of VLSI Signal Processing Systems for Signal Image and Video Technology will be valuable to anyone working or researching in the field of wireless communication systems It serves as an excellent reference providing insight into some of the most challenging issues being examined today

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architectural and circuit techniques for wireless transceivers to achieve multistandard and low voltage compliance It provides an up to date survey and detailed study of the state of the art transceivers for modern single and multi purpose wireless communication systems The book includes comprehensive analysis and design of multimode reconfigurable receivers and transmitters for an efficient multistandard compliance *Microwave Circuit Design Using Linear and Nonlinear Techniques* George D. Vendelin,Anthony M. Pavio,Ulrich L. Rohde,2005-10-03 The ultimate handbook on microwave circuit design with CAD Full of tips and insights from seasoned industry veterans Microwave Circuit Design offers practical proven advice on improving the design quality of microwave passive and active circuits while cutting costs and time Covering all levels of microwave circuit design from the elementary to the very advanced the book systematically presents computer aided methods for linear and nonlinear designs used in the design and manufacture of microwave amplifiers oscillators and mixers Using the newest CAD tools the book shows how to design transistor and diode circuits and also details CAD s usefulness in microwave integrated circuit MIC and monolithic microwave integrated circuit MMIC technology Applications of nonlinear SPICE programs now available for microwave CAD are described State of the art coverage includes microwave transistors HEMTs MODFETs MESFETs HBTs and more high power amplifier design oscillator design including feedback topologies phase noise and examples and more The techniques presented are illustrated with several MMIC designs including a wideband amplifier a low noise amplifier and an MMIC mixer This unique one stop handbook also features a major case study of an actual anticollision radar transceiver which is compared in detail against CAD predictions examples of actual circuit designs with photographs of completed circuits and tables of design formulae **Encyclopedia of Multimedia Technology and Networking, Second Edition** Pagani, Margherita,2008-08-31 Advances in hardware software and audiovisual rendering technologies of recent years have unleashed a wealth of new capabilities and possibilities for multimedia applications creating a need for a comprehensive up to date reference The Encyclopedia of Multimedia Technology and Networking provides hundreds of contributions from over 200 distinguished international experts covering the most important issues concepts trends and technologies in multimedia technology This must have reference contains over 1 300 terms definitions and concepts providing the deepest level of understanding of the field of multimedia technology and networking for academicians researchers and professionals worldwide **Radio Frequency Integrated Circuits and Systems** Hooman Darabi,2020-03-12 This updated and expanded new edition equips students with a thorough understanding of the state of the art in radio frequency RF design and the practical knowledge and skills needed in industry Introductory and advanced topics are covered in depth with clear step by step explanations including core topics such as RF components signals and systems two ports noise distortion low noise amplifiers power amplifiers and transceiver architectures New material has been added on wave propagation skin effect antennas mixers and oscillators and digital PAs and transmitters Two new chapters detail the analysis and design of RF and IF filters including SAW and FBAR duplexers and N path filters

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