

Dedication

I dedicate thesis research to my parents. And all my friends.

ACKNOWLEDGEMENT

First of all, I would like to thank our almighty God for shedding on me good health and keeping my brain working to the extent completing .this research

Next, to the Center of Engineering And Technical Studies (CETS) and many thank to my supervisor Dr. Abd Elrasoul Gabar Alzubaidi , especially, I would like to sincerely thank him for his valuable advice and .the continuous effort that exerted while was I carrying out this study
Sincere appreciation goes to my parents, brothers, sisters and all my .friends

Abstraction

Search consists of two parts, the first theoretical study of electromagnetic waves and the second computer program that simulates the spread of electromagnetic waves.

Part I: The theoretical study of waves of electromagnetic (discovery and the generation of waves and the laws relating to the areas of electromagnetic and their interaction with each other and with the cargo and electrical currents, electromagnetic spectrum and its components, the spread of electromagnetic waves, a division of waves in the way it spread over the surface of the ground and within the atmosphere, antennas and Types of are those which are the generation and transfer of electrical signal to the electromagnetic waves spread P space and phenomena affecting the deployment, the transmission lines used to transmit electric power and information signals and control and measurement between (sender and receiver and the Recipient from one place to another

Part II: Simulation of the spread of electromagnetic waves, a division of waves in the way it spread over the surface of the ground and within the atmosphere, electromagnetic spectrum, natural phenomena affecting between sender and recipient, the recipient, a scheme that illustrates the flow of data through a system of information processing, and processes that take place with the system

Using the computer program used in this research is obtained forms show the form of the electromagnetic spectrum and how the spread of electromagnetic waves.

(+ + The program used to carry out the simulation is a program (turbo c

تجريد

البحث يتكون من جزئين الاول دراسة نظرية للموجات الكهرومغناطيسية والثانى برنامج حاسوب يقوم بمحاكاة انتشار الموجات الكهرومغناطيسية .

الجزء الاول : دراسة نظرية للموجات الكهرومغناطيسية (اكتشاف وتوليد الموجات والقوانين المتعلقة بالمجالات الكهرومغناطيسية وتفاعلها مع بعضها البعض ومع الشحنات والتيارات الكهربائية، الطيف الكهرومغناطيسى ومكوناته ،انتشار الموجات الكهرومغناطيسية ، تقسيم الموجات من حيث طريقة انتشارها فوق سطح الارض وضمن الغلاف الجوى ، الهوائيات وانوعها فهى التى تقوم بتوليد وتحويل الاشارة الكهربائية الى موجات كهرومغناطيسية تنتشر فى الفضاء والظواهر المؤثرة على انتشارها ، خطوط النقل التى تستخدم لنقل الطاقة الكهربائية واشارات المعلومات والتحكم و القياس بين المرسل والمستقبل والمتلقى من (مكان لآخر .

الجزء الثانى :محاكاة انتشار الموجات الكهرومغناطيسية ، تقسيم الموجات من حيث طريقة انتشارها فوق سطح الارض وضمن الغلاف الجوى ، الطيف الكهرومغناطيسى ، الظواهر الطبيعية المؤثرة بين المرسل والمستقبل ، المتلقى ، مخطط يوضح تدفق البيانات من خلال نظام معالجة المعلومات ، والعمليات التى تجرى مع ذلك النظام .

باستخدام البرنامج الحاسوبى المستخدم فى هذا البحث نتحصل على اشكال توضح شكل الطيف الكهرومغناطيسى وطريقة انتشار الموجات الكهرومغناطيسية .

(turbo c++) البرنامج المستخدم للقيام بعملية المحاكاة هو برنامج

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Abbreviations

EM : Electromagnetic
 EMR: Electromagnetic Radiation
 EMF: Electromagnetic Field
 Y:gamma ray
 MIR: Mid infrared
 HF: High Frequency
 HX: Hard X_RAY
 FIR: Far infrared
 MF: Medium Frequency
 SX: Soft X-rays
 RW:Radio Wave
 LF: Low Frequency
 EUV: Extreme Ultraviolet
 EHF: Extremely High Frequency
 VLF: Very Low Frequency
 NUV: Near Ultraviolet
 SHF: Super High Frequency
 VF/ULF: Voice Frequency
 VL:Visible Light
 UHF: Ultra High Frequency
 SLF: Super Low Frequency
 NIR: Near Infrared
 VHF: Very High Frequency
 ELF: Extremely Low Frequency
 HF: High Frequency
 ELF: Extremely low Frequency
 VF : Voice Frequency
 LOS : Line-of-Sight
 OTH: Over-the-Horizon
 TEM: Transverse Electromagnetic WAVE
 TE: Transfers Electric Wave