

بسم الله الرحمن الرحيم

الآية :-

قال تعالى : (اللَّهُ تَزَّلَ أَحْسَنَ الْحَدِيثِ كِتَابًا مُتَشَابِهًا مَثَانِيَ تَقْشَعْرُقُ
مِنْهُ جُلُودَ الَّذِينَ يَخْشَوْنَ رَبَّهُمْ ثُمَّ تَلِينُ جُلُودُهُمْ وَقُلُوبُهُمْ إِلَىٰ ذِكْرِ اللَّهِ
ذَٰلِكَ هُدَىٰ اللَّهِ يَهْدِي بِهِ مَن يَشَاءُ ۗ وَمَن يُضَلِلِ اللَّهُ فَمَا لَهُ مِن هَادٍ)

صدق الله العظيم

الزمر الابه (23)

Dedication

*This research dedicated to my dear father, my kind full angel
my mother who guided me from the first step on and never
...let me fall*

Acknowledgement

I would like to express my deepest appreciation to all those who provided me the possibility to complete this research. I am thankful for their aspiring guidance, invaluable constructive criticism and friendly advice. I am sincerely grateful to them for sharing their truthful and illuminating views on a number of issues .related to the research

*A special gratitude I give to my supervisor **Dr. Mohamed Elfadil Mohamed Gar-elnabi**, whose contribution in stimulating suggestions and encouragement, .helped me to coordinate my research*

I express my warm thanks to my family. A special feeling of gratitude to my loving parents, Somaia and Tilal Ahmed whose words of encouragement and push for tenacity ring in my ears .My brothers : momen and moaaz ,have never left my .side and are very special

.I give special thanks to my best friends, colleagues and teachers

Abstract

Medical imaging of human body requires some form of energy, the energy used to produce the image must be capable of penetrating tissues then a multi step process by which information concerning patient anatomy and physiology was gathered and displayed with the modern technology. Radiographic images are useful for very wide range of medical indications. The image quality that is obtained from medical imaging device involve compromise better X-Ray image can be made when the radiation dose to the patient is optimum. Spatial resolution is usefulness in determining the accurate diagnosis, modulation transfer function MTF give the most complete characterization of the spatial resolution of the imaging device. This study was conduct in Antalia Medical Center, Khartoum, Sudan and the measurement was performed using X-check FLU phantom. The results of this study showed that the best resolution scored at higher energy 90 and 85 kv, where 100% resolution was scored for bar phantom with a frequency of 0.5 cycle/mm, 94% for 0.56 cycle/mm, 80.1% for 0.63cycle/mm and 75% for 0.71 cycle/mm all at 90 kv. The results showed that as the thickness of the bar decreases (it is frequency increases) the .resolution deteriorate

المستخلص

يتطلب التصوير الطبي لجسم الانسان لشكل معين من الطاقه التي لها القدرة علي اختراق انسجة الجسم واعطاء معلومات تشريحيه ووظيفية للعضو المعين مما يساعد في التشخيص الطبي لكثير من الامراض.

في معظم الحالات يتم الحصول على صورة جيدة من اجهزة التصوير الطبي بواسطة جرعات عالية من الاشعة مما يؤثر على سلامة وراحة المريض , لذلك يجب ان يكون هناك موازنة بين سلامة المريض وجودة الصورة . اجريت هذه الدراسة في مركز انطاليا الطبي والهدف منها هو تقييم جهاز الاشعة التشخيصية لايجاد الجهد الامثل للحصول على افضل درجة لوضوح الصورة. تم تصوير نموزج بمختلف الجهود ,وقد اظهرت النتائج ان افضل وضوح للصورة كان عند الجهود 90 و 85 وقد كانت جودة الصوره 100% عند تردد 0.5 زبزة/ثانيه . و94% للتردد 0.56 زبزه / ثانيه و80.1% للتردد 0.63 زبزة / ثانيه و 75% للتردد 0.71 ذبذبة /ثانية وكل هذه القيم كانت عند جهد يساوي 90 فولت . اظهرت النتائج انه بنقصان السمك (زيادة التردد) تتناقص درجة وضوح الصوره.

List of content

	I
	الاية.....
Dedication.....	II
Acknowledgement.....	III
Abstract English.....	IV
Abstract Arabic.....	V
List of content.....	VI
List of table.....	VIII
List of abbreviation.....	XI

Chapter one:

introduction.....1

introduction.....	1	1.1
Problem of the study.....	3	1.2
The objectives	4	1.3
Significance of the study.....	4	1.4
Overview of the study	5	1.5

Chapter

two:

literature

review.....6

Chapter

three:

methodology.....21

Chapter four: results.....	23
Chapter five: discussion, conclusion, recommendation.....	27
discussion.....	27 5.1
conclusion.....	29 5.2
recommendation.....	5.3
29
References.....	30
Appendices.....	31

List of figure

- Figure 4-1 scatter plot show the relationship between the Kv and resolution of a bar with a frequency of 0.5 cycle/mm. the trend line direct a direct linear relationship with increment of resolution by 0.1 .percent per Kv
- Figure 4-2 bar graph show the effect of increasing the Kv on resolution for a an object with a frequency of 0.5 .cycle/mm
- Figure 4-3 scatter plot show the relationship between the Kv and resolution of a bar with a frequency of 0.56 cycle/mm. the trend line direct a direct linear relationship with increment of resolution by 0.95 .percent per Kv

Figure 4-4 bar graph show the effect of increasing the Kv on resolution for an object with a frequency of 0.56 cycle/mm

Figure 4-5 scatter plot show the relationship between the Kv and resolution of a bar with a frequency of 0.63 cycle/mm. the trend line direct a direct linear relationship with increment of resolution by 0.59 percent per Kv

Figure 4-6 bar graph show the effect of increasing the Kv on resolution for an object with a frequency of 0.63 cycle/mm

Figure 4-7 scatter plot show the relationship between the Kv and resolution of a bar with a frequency of 0.71 cycle/mm. the trend line direct a direct linear relationship with increment of resolution by 0.38 percent per Kv