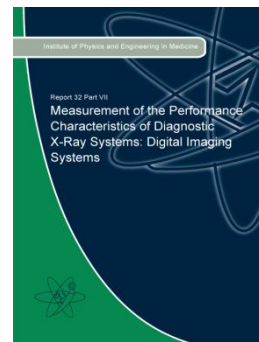


### *Measurement of the Performance Characteristics of Diagnostic X-ray Systems: Digital Imaging Systems*

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*This is a much awaited report prepared and published on behalf of the Institute of Physics and Engineering in Medicine (IPEM). It replaces the IPEM report 32, Part IV (IPEM, 1997) as film imaging systems have been replaced with digital imaging systems.*

*The aim of this report is to discuss methods for commissioning and routine quality control (QC) of computed radiography (CR) and digital radiography (DR) systems.*

*The report gives guidance on tests that should be undertaken during commissioning and on tests for routine QC as part of a quality assurance programme. It provides tolerances that are intended to indicate a significant change in image quality, patient dose or that might affect clinical outcome.*

*Chapter 1 gives a brief introduction to the report with a good description of the framework for testing digital systems. Chapter 2 describes each of the digital imaging technologies and highlights some of their properties that need to be understood when performing the tests that are described in later chapters.*

*Chapter 3 describes some main issues such as pre-processing, detector dose indicator, reject analysis and image artefacts that need to be understood before undertaking quality control.*

*Chapters 4 and 5 cover commissioning and routine quality control tests for CR and DR systems used for general radiography. These include checks on the sensitivity of the system and image quality.*

*The tests described may be carried out with equipment generally available in departments – very important for anyone wanting to start a QC programme for these systems.*

*For CR systems, summary tables cover suggested manufacturer-specific test conditions and a summary of the tests.*

*Chapter 6 covers the area of quantitative analysis of the digital detector. This is a very interesting chapter, however, the tests described will be difficult to implement in most departments due to the lack of equipment, knowledge and programming skills. This might, however, change in the future.*

*Chapter 7 is, in my opinion, the most important chapter as it recommends methods for the commissioning and routine quality control of automatic exposure control (AEC) devices.*

*Commissioning AECs is very important as they need to be set-up in an optimal way for a wide range of energies and examinations. This chapter lays out a promising framework for setting up the tube potential compensation curve for AEC.*

*In conclusion, this is a very useful report for anyone who wants to do commissioning and routine QC of CR and DR systems. It is concise, well written and brings together the various sources of current guidance in one single report.*