

# الإهداء

أهدي مجهودي المتواضع هذا

إلى روح أُمي فلها الرحمة  
أُمي .....  
أماه يا نوراً يشع في الظلام

إلى الذي علمني الصمود وظل نبراساً يضيئ الطريق  
حتى وصلت هذه المرحلة  
أبي .....

إلى الذين أحبهم دون مبرر وهم كل التبرير  
أخوتي .....

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# Abstract

Digital system with theoretically infinite bandwidth is distortion less over all frequencies. However, in practical terms, every digital transmission system has a finite bandwidth with a certain varying amount of frequency response distortion. Here the pulses tend to spread out and overlap causing what is called Inter Symbol interference. This impairment can be minimized by pulse shaping, equalization and other methods.

The degradation is assessed by means of an eye diagram. The diagram used to illustrate how the received signal level can be less than the transmitted signal level due to the influence of the transmission impairments.

## تجريد

النظام الرقمى بعرض النطاق الترددى اللانهائى من الناحيه النظرية اقل تشويه على كل الترددات . على اى حال ، من الناحيه العملية ، كل نظام ارسال رقمى له عرض نطاق ترددى محدود مع بعض تفاوت مقدار تشويه إستجابة التردد. هنا تميل النبضات إلى الإنتشار والتداخل لتسبب ما يسمى بالتداخل بين العينات. هذا الخلل يمكن ان يقلل بتشكيل النبض ، المساواة وغيرها من الأساليب.

التدهور قيم بواسطة تخطيط العين. التخطيط يصلح لتوضيح كيف أن مستوى الإشارة المستقبلة يمكن أن يكون اقل من مستوى الإشاره المرسله نتيجة لتأثير معوقات الإرسال .

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# List of Abbreviations

<b>AWGN</b>	<b>Additive</b> with Gaussian Noise
<b>DBrn</b>	Decibels above Reference Noise
<b>ESD</b>	Energy Spectral Density
<b>FDM</b>	Frequency Division Multiplexing
<b>I+D</b>	Integrated and Damp
<b>ISI</b>	Inter Symbol Interference
<b>LTI</b>	Linear Time Invariant
<b>NPSD</b>	Noise Power Spectral Density
<b>NRZ</b>	Non Return To Zero
<b>OOK</b>	On Off keying
<b>PCM</b>	Pulse Code Modulation
<b>PAM</b>	Pulse Amplitude Modulation
<b>PRBS</b>	Pseudorandom Binary Sequence
<b>SNR</b>	Signal to Noise Ratio