



Analogue and Digital

What's the difference?





All waves carrying information are subject to ‘interference’

Try listening to a conversation at a party where there is music, shouting and lots of other sound waves interfering with and competing with the ‘signal’ coming from the person you are talking to

Radio waves also get ‘interference’ from other radio transmissions, from reflections of radio waves off buildings and even from electrical sparks (these give out radio waves as well as light)

In communications we refer to the ‘signal to noise ratio’

Imagine you are at that party: if the noise is too strong the signal is lost





Try this activity:

The written message shown is like an analogue message. Part of it has been drowned out by 'noise'.

Can you work out what it says?

DI E A C E C E M I N T E M M O D E

E T D E O U T O F C O N T R O L





Here is an example of a digital code that has been ‘interfered’ with by random ‘noise’.

Can you work out what the digital code is?





Analogue TV signals depended on the strength of the radio wave carrying them

This signal was received and amplified. But something like a sparking electric drill could ruin the TV signal with 'electromagnetic noise'

Analogue signals pick up a lot more 'noise' than digital and the digital decoder can ignore the noise so a digital signal is higher quality.

Analogue signals are continuous and transmit all the data that was recorded. Digital signal only transmit the necessary packets of data so they require less bandwidth. In the bandwidth for one analogue channel you can transmit several digital channels.





An encoder box creates a digital signal before transmission. Once received a decoder box in the digital TV converts the signal back

Millions of pounds were spent moving from analogue to digital TV to bring benefits like more channels and interactive services

The digital TV signals are still prone to interference or not receiving the complete signal but they are not always as noticeable.

What do you see/hear when you don't get` the complete digital TV signal?

What happens in the set-top box to reduce the effects of this problem?





Answers

Original analogue message

PLEASE SEND TEN MORE
FIRE OUT OF CONTROL

Original digital message

