

10 WATT TV TRANSMITTER DESIGN:
A REPORT ON VIDEO DESIGN FOR 10 WATT
TRANSMITTER INCLUDING THE FOLLOWING
CIRCUIT DESIGN: CLAMPING, VIDEO CORRECTOR,
CLIPPING AND VIDEO MODULATOR



BUREAU OF RESEARCH & CONSULTANCY
INSTITUT TEKNOLOGI MARA
40450 SHAH ALAM, SELANGOR
MALAYSIA

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1.0 INTRODUCTION.

1.1 SOUND.

Listening, or hearing, is probably the most informing and pleasing of our five senses. Hearing can be defined as the perception of the sound. Sound is the increase and the decrease in air pressure acting on the diaphragm, or drum, of the ear. This increase or decrease causes the drum and the inner parts of the ear to vibrate. The action is similar to ripples on the surface of water. Ripples of water develop when a pebble dropped into the pool initially produces a depression within the surface. The elasticity of the water then pulls the surface up and a crest forms. This process is repeated and a series of depression and crests develop, moving away in all directions from the origin. As these ripples, or waves, hit a blade of grass at the edge of the pool, the blade is stimulated and vibrates. Thus, vibration of the grass blade is a result of disturbing the water surface with the pebble. Similarly a disturbance of air, also technically a liquid develops radiating waves stimulate the eardrums, a small diaphragm within the ear.

Sound is a vibration or rhythmic disturbance operating within the frequency range that we can hear. The lowest frequency that we can hear is about 20 Hz and the highest

about 20 KHz. When it travel through air, which is the way we usually hear it, consists of waves of alternately increasing and decreasing air pressure, which travel outward from the source at a speed of around 340 meters a second. The actual velocity depends on the temperature of the air through which it passes increasing with heat and to much lesser extent humidity. The intensity of sound depends on the power of the source and the manner in which it has travelled.

1.2 SOURCE OF AUDIO.

Source or audio waves are produced by all material things that move or vibrate within our range of hearing. The eardrums are limited to responding the vibrations occuring at specified rates. In general, the sound is produced by three methods - air movement, vibrating objects and percussion.

The sound produced by a falling tree is a combination of air movement and percussion. A 'swoosh' type of sound occurs as the falling tree splits a column of air and pushes it aside [Fig.1.1 (a)]. When the tree strikes the ground, a sharp booming sound is likely to develop as the earth's crust vibrates.