

Designing home made tv antenna term paper sample

[Media](#), [Television](#)



Background information

TV is viewed as an important component in most households. Watching television is one of the most affordable forms of entertainment. People get updated on the current affairs in their country and around the globe through televisions. Advertisements, marketing and other types of advertisement are seen between commercial breaks; hence TV is very valuable in marketing. There is an increased craze of individuals over TV and having the best signal quality is also a must for many of them (David, 2004). Therefore having an antenna connection in your house is a must. In order to have best TV receptions one need to acquire one that will provide top quality reception. Some aerial signal services work nicely in certain areas but pick a signal slowly in some others. It's therefore necessary to have an antenna that will have great connection. The length of the antenna and the hardware used in its design greatly influence the quality of reception.

Antennas were, first, used and patented by Thomas Edison in 1885. They are often referred to as aerials but both words mean the same hence they can be used interchangeably. However an aerial assumes a wire format while an antenna is a metallic structure. Both serve the same purpose.

Specific Manufacturing process of Aerials

Basically a metal interconnect conductor like polysilicon is used in factory manufacturing of aerials. The wafer is created but the metal conductor is not grounded or connected to it. Fabrication process of plasma etching follows taking caution to avoid charge accumulation which would otherwise physically damage the transistor gate oxide component of the metallic

component. To avoid such damage, a small antenna diode is added to safely discharge the node. Another alternative used to solve this problem is to split the antenna by routing it up to another metal layer and then routing it down again. A consideration is taken between the physical area of the metallic element used to make the aerial to the total oxide area with which the aerial is electrically connected. This is to avoid charge accumulation as well as reduce the effect of interference from electromagnetic waves. The electrical connection of the aerial is considered dangerous hence well suitable areas for proper contacts and spacing are checked for to ensure correct ground and power connections.

Comparison with Homemade Aerials

The above process is industrial and very involving. Most materials are expensive and can only be manufactured in the industry. Besides it requires electrical technical knowhow especially in the design of the electrical components and ground connections. However, it can be noted that both the industrial antenna and the homemade antenna are developed using the same techniques. They all have electrical component which is a key component in the design of the aerials, all of them are able to receive quality signals miles away. However Homemade Aerials are cheap to design, besides they are made from locally available materials and they do not require special skills. Materials used are locally available, cheap to acquire, environmental friendly and they do not cause degradation.

UHF TV Antenna

Aerial Fixed at A Household.

Need for home made TV Antenna

Purchasing an antenna for your TV at home can be expensive. Making a home-made antenna with readily available materials can save expenses (Wilson, 2008). A quarter a wavelength long Antennas are simple to construct and cheap to make. The creation of a homemade Antenna TV is the subject of this discussion.

The following design components will be considered in the design of homemade TV Aerial

Basic objectives

Material selection

Environmental consciousness

Electric / Mechanic design and Criteria involved

Manufacturing process

Suggestions on how to improve the current design and manufacturing processes

The main objective

Materials are needed in order to make a homemade TV antenna.

A three inches plastic can with a removable plastic lid. The can should be clean and dry.

A six feet long cajole wire with cajole plug terminals fastened on both sides.

A roll of aluminum foil, ruler, two scissors and wire cutters.

Environmental consciousness

The design materials selected above are environmental friendly because

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they do not cause any pollution or tamper with existence of any form of live. Besides they are simple materials which can be disposed off easily when faulty or not usable.

Manufacturing processes of TV aerials in general.

TV antennas should not be complicated to design and neither should they be developed from complicated materials . Some of the most basic material used to make homemade TV aerials are Wires, plastic cans, strings as well as scissors. The size of the wire usually determines the length of the aerial which will subsequently determine the quality of the signal reception. Plastic cans act as the housing unit of the aerial base as well as platform on which to fasten the aerial. Scissors are used to cut out the cans accurately and the strings are used to fix the aerial components together. Most often, aluminum foil is used to make homemade TV antennas because it experiences less interference from electromagnetic waves thereby improving the quality of the signal receive. TV aerials are usually installed at the top most position of the house and it is then positioned such that it faces away from tall buildings and trees. This is to enhance the strength of the signal reception.

Procedure in making the Antenna

The plastic lid is removed off the can and a hole cut at the middle. Using the razors a half inch diameter opening is made at the centre of the cover. Make another hole in the center section of the lower part of the plastic can. The openings are needed in order to pass the cord ends over the can. Use the ruler to measure the holes so as to ensure the wire ends moves across.

Reveal the steel located at the centre of the cajole wire. This can be

achieved by cutting off the coax plug port from one end of the wire followed by cutting off the coat, foil and plastic like electrical insulator three centimeters from the tip so as to expose the metal core. Measure 12 centimeters from jacket tip and remove the cover away once the metal core is shown. Ensure that only the cover is cut off and not any other. After removing the coat, spread the steel wiring to the edge and cover them around the wire (John, 2005).

Place the cajole cable in the can by placing the coax cord end with a connector to the can and then throughout the opening at the base . Put in about 16 centimeters of the other end of the wire through the hole of the plastic can cover and shut it on the top of the can with the coax cable inside. Nothing else should overhang at the top and bottom of the can apart from the cajole cable alone.

Cover the plastic-type can closely with the aluminum foil. When covering, ensure that you include the part of cables sticking out on top of the can except for the metallic core. You can now begin using the home made TV Antenna by attaching the cajole wire port to the TV.

How to improve the current design

The design of the antenna can be improved by using a larger can. This is to ensure that that antenna has a large surface area for better signal reception.

Aluminum foil should be coated well to ensure that there is no interference which would otherwise distort the quality of the signal (Ann, 2003).

References

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