



*Figure 3: Computer Set*

#### **2.2.4 MASTER CONTROL ROOM (MCR)**

The master control room is where the on air signals are controlled. Facilities at the MCR include the character generator, matrix switcher, VTRs, distribution amplifiers, monitors and the patch panel. The MCR output feeds the transmitter.

#### **2.2.5 TRANSMISSION ROOM**

The transmitting room is the heart of the broadcasting station. It is a room where the signal will be radiated in form of electromagnetic waves with the help of the antenna. The transmitting room consists of the radio transmitter, voltage regulator, uninterrupted power supply, dummy load and air conditioners.

#### **2.2.6 UNINTERRUPTED POWER SOURCE (UPS)**

Uninterrupted power source is an electrical device that provides emergency power to a load when the input power source or mains power fails. A UPS differs from an auxiliary or emergency power system or a standby generator in that it will provide near instantaneous protection from input power interruptions, by supplying energy stored batteries. The on-battery run-time of most uninterrupted power sources is relatively low (only a few minutes) but sufficient to start a standby power source or properly short down the protected device.

largely disappears and permits signals to travel to much more distant locations via ionospheric reflections. However, fading of the signal can be severe at night.

As well as on the medium wave bands, amplitude modulation (AM) is also used on the shortwave and long wave bands. Shortwave is used largely for national broadcasters, international propaganda, or religious broadcasting organizations. Shortwave transmissions can have international or inter-continental range depending on atmospheric conditions.<sup>[21]</sup> Long-wave AM broadcasting occurs in Europe, Asia, and Africa. The ground wave propagation at these frequencies is little affected by daily changes in the ionosphere, so broadcasters need not reduce power at night to avoid interference with other transmitters

### **2.1.2 FREQUENCY MODULATION**

FM refers to frequency modulation, and occurs on VHF airwaves in the frequency range of 88 to 108 MHz almost everywhere.

Edwin Howard Armstrong invented wide-band FM radio in the early 1930s to overcome the problem of radio-frequency interference (RFI), which plagued AM radio reception. At the same time, greater fidelity was made possible by spacing stations further apart in the radio frequency spectrum. Instead of 10KHz apart, as on the AM band in the US, FM channels are 200 kHz (0.2 MHz) apart. In other countries, greater spacing is sometimes mandatory, such as in New Zealand, which uses 700 kHz spacing (previously 800 kHz). The improved fidelity made available was far in advance of the audio equipment of the 1940s, but wide interchange spacing was chosen to take advantage of the noise-suppressing feature of wideband FM.

Bandwidth of 200 kHz is not needed to accommodate an audio signal — 20 kHz to 30 kHz is all that is necessary for a narrowband FM signal. The 200 KHz bandwidth allowed room for  $\pm 75$  kHz signal deviation from the assigned frequency, plus guard bands to reduce or eliminate adjacent channel interference. The larger bandwidth allows for broadcasting a 15 KHz bandwidth audio signal plus a 38 kHz stereo "subcarrier"—a piggyback signal that rides on the main signal. Additional unused capacity is used by some broadcasters to transmit utility functions such as background music for public areas, GPS auxiliary signals, or financial market data.

## **2.3 TECHNICAL EXPERIENCE GAINED**

### **2.3.1 WORKING IN THE RECORDING STUDIO**

The recording studio is a place in the radio house where off air activities are carried out. Programs are been recorded, edited and copied to the on air studio for broadcast. In the recording studio, we create jingles of any capacity, record adverts for clients, record messages for clients, record short dramas and many more.

Electronic devices such as computer set, studio sound card, studio microphones are highly recommended in the studio to make recording possible. The essence of the microphone is to collect audio signal, the sound card filters the signal collected by the microphone and is fed into the computer where more work is done to produce a desired output.

The software we use in editing our work is called **adobe audition**. Adobe audition is used for recording, creating jingle, music, voice note or anything recordable (audio). The software has features such as effect, filter, parametric equalizer, modulation and many more. An important feature of adobe audition is the **multitrack** effect; this effect combines a voice note with an instrumental hence producing unified sound. All finished work from the recording studio are copied via a removable gadget and taken to the on air studio for live broadcast at designated time.

### **2.3.2 WORKING IN THE ON AIR STUDIO**

The on air studio is a place where live programs are anchored. This is because the output from the on air studio is fed directly to the transmitter and anything that reaches the transmitter is already on air. Gadgets in this studio includes but not limited to computer set, audio console mixer, sound card, microphone, headset, loudspeaker, bell, UPS, telephone or handset. On air personnel makes use of the headset to receive feedback (listening to what they are presenting).

The software used in the on air studio is known as **jazler**. Jazler is one important tool in radio automation; jazler is embedded with tools that enable a radio station function 24hours without having anyone to monitor it. To avoid echo of sound in the studio, the walls are well padded with wood and acoustic foam.