

## **LHBS/Radio Broadgreen Training Unit**

### **Section 3 – Technical**

There are many different ingredients that make up a radio program depending on the type of program, its content, style and any external sources that may be required.

Your basic knowledge already gained from sections 1 and 2 of this course should already give you some understanding. Once you have managed to gain practical as well as theoretical know-how, then you are almost done. But there are some items that need to be explained in a little more detail.

First of all, how basic radio works. A sound source (the presenter speaking into a microphone) will have his voice (analogue sound wave) converted into electrical impulses, that in-turn are changed to electrical radio waves. A radio receiver will pick up the electrical radio waves, change them back into audio waves (the speaker) so your ear will hear them. To make all this work, there are numerous processors this has to go through before it reaches your ears. Compressors, limiters and audio processors are all found in the transmission chain before the signal is transmitted to your radio.

A point about hearing a recording of your voice, and why it sounds different. When you talk, the sound is made from the vocal chords vibrating. This vibration is also picked up by your ears (being not far from your throat). When you speak you will hear your voice with your ears, but your ears will also pick up the vibrations made by your vocal chords. When you hear a recording of your voice, you just hear your voice. That's why your recorded voice sounds different from talking!

So now we know how basic radio is broadcast, how do we do it. Well it all starts in the studio. Many radio stations have more than one studio, so some sort of switching is required to make the studio live/on air. At Radio Broadgreen this is done manually at the Central Control Room/Rack (**CCR** or **Master Control Room** as it is called in some radio stations). Some radio stations will have an "offer" and "accept" system. The yellow/amber studio indicators will tell you if the studio is live. The red indicators will tell you if any of the microphones are live. There should also be a red Mic Live indicator outside the studio door preventing people from walking in whilst your doing a link.

The other equipment found in the rack is adjusted by the station engineers only – do not adjust any of the controls in this rack other than the studio switcher as and when required.

Now you know the studio is live, you can broadcast your program. Always ensure that you do your "pre-flight" checks; ensure your headphones are set to a comfortable level, **Pre Fade Listen** all channels you will use (most importantly your microphone), and set up your audio as required (News-in jingle, Weather bed, Weather end stab, etc.) If you don't hear audio that should be there, check the A-B audio source selector button.

Make your way through the "station clock", keeping all junctions to time (i.e. advert breaks, liners, etc.) By keeping to this system, you will be keeping within the style of the station. Remember to do your back-timing, and use Sky News Radio on the hour. When you are close to finishing your program, it is courtesy to tidy up before the next presenter arrives.

It is a government/OFCOM ruling that all licensed radio stations' output has to be logged. You must record your program on your mini-disc, or the mini-disc for those regular hours (if you are providing cover).

And so onto the many different "ingredients" or sound sources that you may have to use. SKY NEWS RADIO is received via the Astra satellite. It is a permanent feed that will "bing" just to let you know that it is still there and play an audio montage just before the news bulletin. This feed is on the fader marked "Sky News" and you must remember to fade down when finished, or the bings' will also be broadcast whilst you read out the weather.

All the adverts/Public Service Announcements and station jingles will be found on Myriad. You may use the CD players. In studio 1 these are a DJ dual set with the control unit sat upon the desk. In studio 2, you will find standard CD players. Place the CD disc into the machine, and PFL the track checking the audio level. Remember that some tracks may start with low audio, so don't be tempted to add a lot of gain. Most CD's are recorded at a similar audio level so once set, they shouldn't need to be adjusted.

Mini-discs could be used to play person jingles or recorded interviews. As the recorded audio levels will differ, it is important that each track is PFL'd to check for level before it is broadcast.

There is a small production "studio" set up in the library. This can be used for production and dubbing purposes with CD, MD, cassette, Revox® open reel and cart machine all linked to the Cool Edit Pro® library PC.

The telephone channel is connected to a telephone hybrid. Because a telephones use the same single line for both transmit (you speaking) and receiving (hearing the caller), the telephone hybrid will "split" the audio so you don't hear "side-tone". Side-tone is when you hear your own voice on a normal telephone, but in radio we don't want this. The hybrid will prevent our voice being heard again back into the mix. To put a call on air, select the line on the BT Navigator switchboard using the studio phone. Put the telephone channel on, and when ready lift the fader. Make sure you cancel the call when finished so you don't tie up the line.

Although Radio Broadgreen doesn't use ISDN or POTS (Comrex®), it is worth just explaining a little about these systems. POTS is a system that will convert analogue audio into digital and force it down an ordinary telephone line. The result is audio better quality than telephone (depending on the bit-rate it can frame up with). ISDN is used extensively within radio broadcasting. Again analogue audio is converted into digital, and sent down a digital line. Excellent stereo quality can be achieved using ISDN. Unfortunately, there are a number of different standards used. For mono voice links/sports commentary, the BBC favour G722, whereas commercial radio favour APTX® codec. Where a good stereo link is needed, MPEG II codec is often used, although again there are a number of different technical settings for MPEG. All you need to know is that ISDN and POTS are digital systems that are used in radio.

Back in the days when each large city had a radio station, unlike the three or four per city, stations would use a radio link. Many well established radio stations still use radio links to this day. The radio-car would transmit from it's remote location back to the studios and the assistant would be able to talk to the radio-car via talkback.

Talkback is an intercom system. It is used by the producer to talk to the presenter, or the presenter to talk to the newsroom etc. It is not used to put persons "on air", but simply an intercom tool. Often in television outside broadcasts, a mobile telephone will provide a link from the studio to the remote.

Some large radio desks may have OS (Other/Outside Source) buttons similar to the Eela desk in studio 2. These are used to select another audio source to its fader.

There are a number of audio editing suites available, and different radio stations use different systems. Pro Tools®, Cool Edit Pro®, Adobe Audition®, Dalet® are all systems used by radio stations for production. Production can be anything from a simple edited interview, to a full mix radio commercial, programme or station jingle package. Most all behave in the same way, with the audio loaded up into an editing window. Once the audio is in place, you can cut, paste, and adjust any number attributes to the audio – saving the final mixed piece. There are also multi-track systems where audio can be cut, looped, added and finally down-mixed. Processors such as Hard-limiting or Normalizing can also be done to finalize the audio ready for broadcast.

Each studio at Radio Broadgreen has Cool Edit Pro II (or Adobe Audition as it is now known) set up including the library PC.

When producing a Promo for your show or a commercial, ensure it is to time. Many radio commercials are 30 seconds in duration, and so try to make your promo 30 seconds also.

Once a promo or commercial has been produced, ensure it is cleared for broadcast by the Program Controller. There are a number of regulations about in-house commercial making, including RACC clearance as well as what sound effects can and cannot be used.

Outside Broadcasts are a great tool to bring something to the listener that they cannot get to. Ensure that any live or pre-recorded broadcasts are with the approval of the committee, well planned and don't break any territorial rules for PPL/PRS (internet streaming).

Finally, a word or two about station security. Radio Broadgreen started its life back in 1983, and a lot of cash and labour has been done to get the studio's and their equipment kept up to date. Ensure when you lock up Warmington Lodge that all doors and windows are secure and that the alarm system is on. Whilst doing your program, if you are the only member of staff in the building, ensure you use any security cameras available to check the exterior. If in doubt, contact security on ex 6500.

Also ensure that you are aware of the fire alarm procedures, location of the First Aid Kit and know of how to report any accidents. It is also every member's responsibility to Health & Safety. Anything that could cause an accident (fire/trip hazards etc.) must be put right by you. If this is not possible, report it.

If there is ANYTHING you are unsure about, simply ask. In my time spent in professional radio, whether it is a seasoned old presenter or a new graduate, they all ask for advice or "Watters how does this work".

It is not a sign that you are dumb, stupid or you enjoy being a student and missed a bit of the college course - all radio stations appear to be different at first so if you are unsure, ask.....