1.0 GENERAL

1.1 Related UBC Guidelines

.1 UBC Learning Space Design Guidelines

2.0 MATERIALS AND DESIGN REQUIREMENTS

2.1 Design Criteria

.1 Where multiple classrooms are served by one set of FM receivers, the minimum FM receiver count should be based on 5% of the largest classroom seat count.

2.2 Listening Assistance Equipment and Materials

.1 FM Transmitter

.1 The FM transmitters will operate in the designated FM listening assistance band of 72Mhz.

.2 The transmitters will have selectable broadcast frequencies in the 72MHz band allowing 16 operating channels to be selected. These frequencies will be on industry standard centres so that any brand of FM listening assistance receiver could be used on any system.

.3 The transmitters should have both line and microphone levels inputs, and the input should have an integral audio compressor with peak stop limiter to prevent high peak levels.

.4 The transmitters should be rack mounted with the AV equipment and the antenna should be mounted outside the rack, extended using 50ohm coaxial cable.

.5 Where multiple classrooms are grouped in a single building, each room should have a dedicated transmitter with a visually conspicuous decal indicating the transmitting channel.

.6 Approved manufacturers are:

.1 Listen Technologies

.2 FM Receivers

.1 The Personal FM receivers will operate in the 72Mhz FM band.

.2 The receiver will have selectable channels amongst the 16 available, with a visual display to indicate channel selected.

.3 The receiver will have an easily accessible volume control and a 3.5mm headphone connector.

.4 The receiver will be equipped with rechargeable batteries.

.5 Each receiver should be supplied with a walkman type circumaural headphone, with 10 extra ear cushion sets for each receiver.
.6 Each receiver should be supplied with an induction neck loop.

.7 Where there are multiple classrooms equipped with listening assist systems in a single building, one set of receivers may be used for the group of classrooms.

.8 Approved manufacturers are:
   .1 Listen Technologies

.3 Receiver Battery Charger /Case
   .1 Each listening assistance system FM receiver set should have a combination carrying/storage case and battery charger.
   .2 Each charger should be able to charge all the available receivers simultaneously.
   .3 Approved manufacturers are:
      .1 Listen Technologies

3.0 EXECUTION

3.1 Wiring
   .1 All audio circuits, unless otherwise specified, shall be balanced, floating and shielded two wire circuits with the red or white wire hot (connected to pin 2 of XLR3 connectors and to the Tip of phone connectors) and the black wire cold (connected to pin 3 of XLR3 connectors and to the Ring of phone connectors).
   .2 Install coax cable in a manner that will prevent sharp bends or kinks. Use right angle coax connectors where necessary to prevent cable kinking in shallow electrical boxes.

3.2 Grounding and Shielding
   .1 Isolate the shields of all shielded cables from both the conduit system and any other shielded cables. Provide continuous shield from source to input point, with shields lifted at the source and grounded at the input point. Properly serve all unconnected shielding. Pin 1 on XLR type connectors must not be connected to the connector barrel or shell.

3.3 Testing
   .1 Conduct tests to demonstrate that the Listening Assistance system is properly functional:
      .1 With speech program at nominal levels in the room, verify that the transmitter is able to function without clipping or overload.
      .2 Ensure that the receivers are able to receive the signal at all seats in the room. Adjust the transmitter antenna if necessary to ensure complete coverage.
      .3 Ensure that the receiver signal in the headphones is free of audible distortion with the speech test signal.

***END OF SECTION***