TABLE OF CONTENTS

Description- The following is a simple test to ensure the RF integrity of an RF screen room.

1- INTRODUCTION

This procedure should help determine and/or isolate an RF leak. Using this as a guide, it may be possible for the MR technologist or van driver to repair the RF leak. If an RF leak is detected and cannot be resolved with this guide, the van manufacture, or appropriate RF vendor, should be contacted for the repair of the RF screen room.

One word of caution: The lack of radio reception, using a simple FM radio, does not indicate a good RF screen room. It is possible to have an RF leak that is outside the band of frequencies that an FM radio can detect. Outside sources that use RF frequencies (i.e., pagers, business radios, or police radios), as well as other anomalies (i.e., arcing power connectors), may generate RF noise and can show up as zipper artifacts in MRI. If a radio signal is detected with an FM radio, that is a good indication that there is a problem with the RF integrity of the RF screen room. The FM radio is only a quick and simple method that can usually help determine the source of an RF interference problem.

2- TESTING INSIDE THE RF SCREEN ROOM

1. While standing outside of the RF screen room (preferably near the operators workspace), adjust the radio receiver to pick up a local FM station. The radio antenna should be fully extended to maximize the receiver's potential. A strong signal (or station) will be a much better indication as to the integrity of the RF screen room being tested.

2. Leave the antenna fully extended and enter the front (patient area) of the RF screen room.

CAUTION

Be careful not to drop the radio while in the magnet room. Some of the radio components are ferrous and, therefore, the radio can become a projectile when near the magnet.

3. Make sure the rear (service area) RF screen room door is fully closed and latched, and then close and latch the front (patient area) RF screen room door. Start with the radio located above the patient table. This area is very critical, the patient's legs act as an antenna, and will pick up any stray RF signals in the screen room and redirect them back into the system via the head, body, or surface coils.

4. Hold the radio away from your body (holding the radio too close to the human body will detune the antenna) and slowly point the antenna at different areas of the room. RF signals are polarized, and the radio antenna needs to be pointing in the same direction as the RF waveform. This is why you need to rotate the antenna and point it in different directions.

5. If an RF signal is detected, move the entire radio in different directions to help determine where the signal is coming from. As you get closer to the RF leak, the radio should play louder and/or clearer. Note: It is possible to have an RF leak that is so severe, that no matter where you place the radio, it will play at the same intensity and/or clarity.

6. If no RF signal is detected around the patient table (be sure to check the entire table area), place the radio near the operator's window and slowly move the radio around the parameter of the window sill. If an RF leak is detected around the window, the van manufacture will have to be contacted.

7. After the window has been tested, place the radio near the front (patient area) RF screen room door, and slowly move the radio around the door frame. If a signal is detected around the door, first use a 3M scotch brite scouring pad (do not use any soap) to clean the frame where the RF fingers or braided wire is used to seal the door. A dirty door frame will not conduct and therefore the RF screen room integrity will be compromised. The van manufacture or the RF screen room vendor can supply special cleaning materials to clean and protect the RF doors.

8. If the front (patient area) of the RF screen room is found to be free of RF signals, or if you detect a signal that you cannot locate.

REVISION HISTORY

REV	DATE	AUTHOR	PRIMARY REASONS FOR CHANGE
0	August 5, 1998	M. Whitlow	Initial conversion from Toolbook to Word.