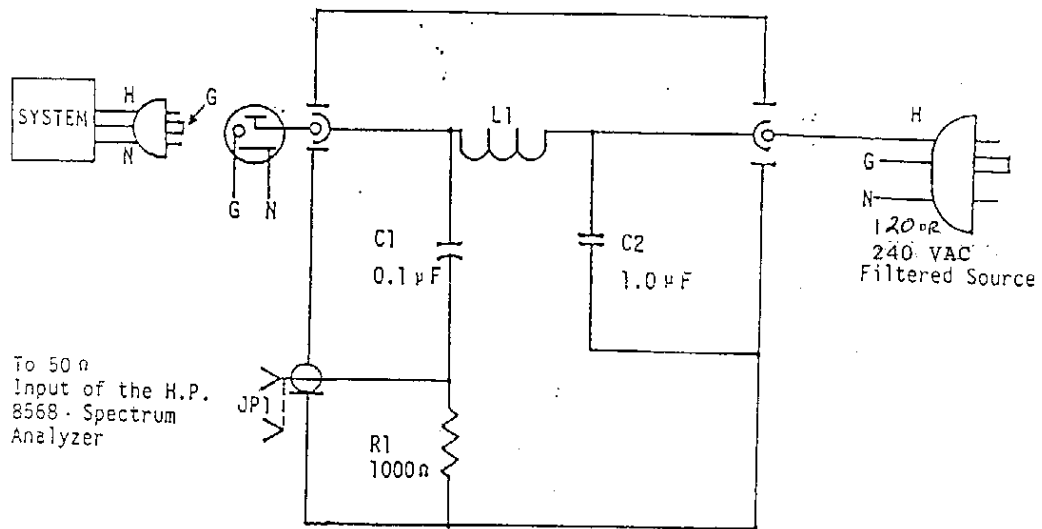


FIGURE 2

NOTE: Dimensions in meters.

Measuring Antenna Height		"D" Spacing
Fixed Low	Preliminary Scan	1 - 3 meters
1m - 4m*	Detailed Measurement	3 meters
1m - 4m	Detailed Measurement	10 meters FCC Part 15

\*Height is varied to find peak emission level.



LISN - AILTECH M/N 94641  
 Solar m/n 8028-50-TS-24-BNC,  
 $L1 = 50\mu$ h

FIGURE 3 Circuit diagram of the LISN to provide the correct impedance curve over the .45-30 MHz frequency range.

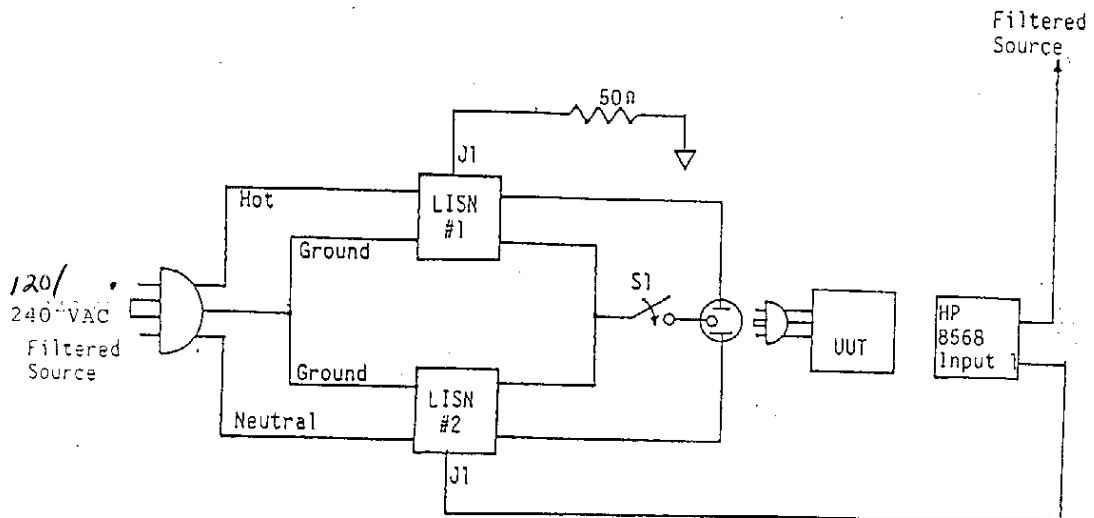


FIGURE 4

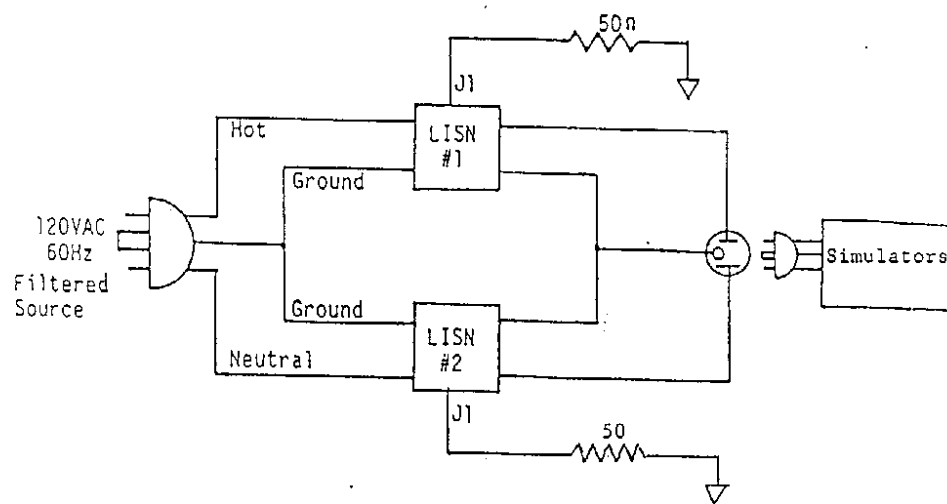


FIGURE 5  
Simulator LISN Setup

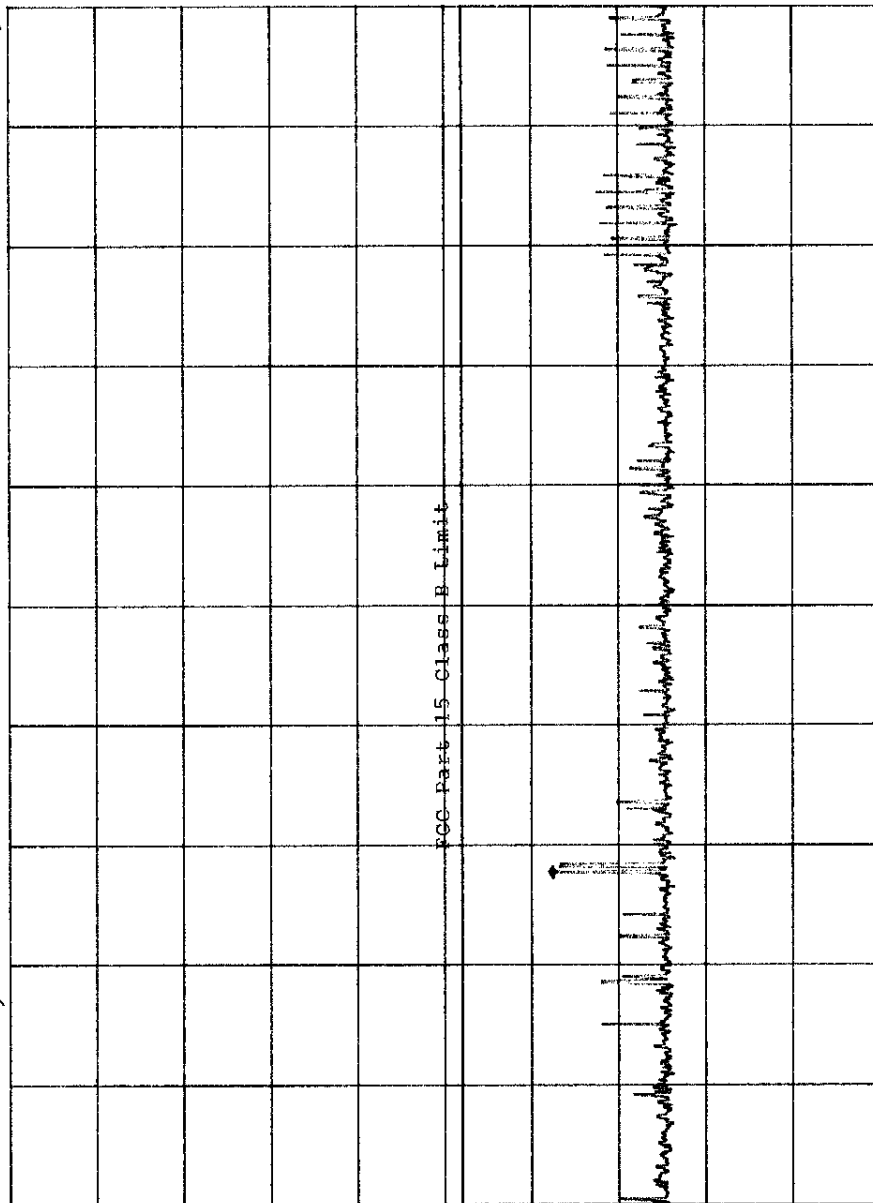
GRAPH 1

AG TAG TRACKER s/n 20 L N I T/R 120 10/13/99 MKR 8.64 MHz  
 REF 100.0 dBμV ATTEN 10 dB 37.60 dBμV

10 dB/

OFFSET  
 1.5  
 dB

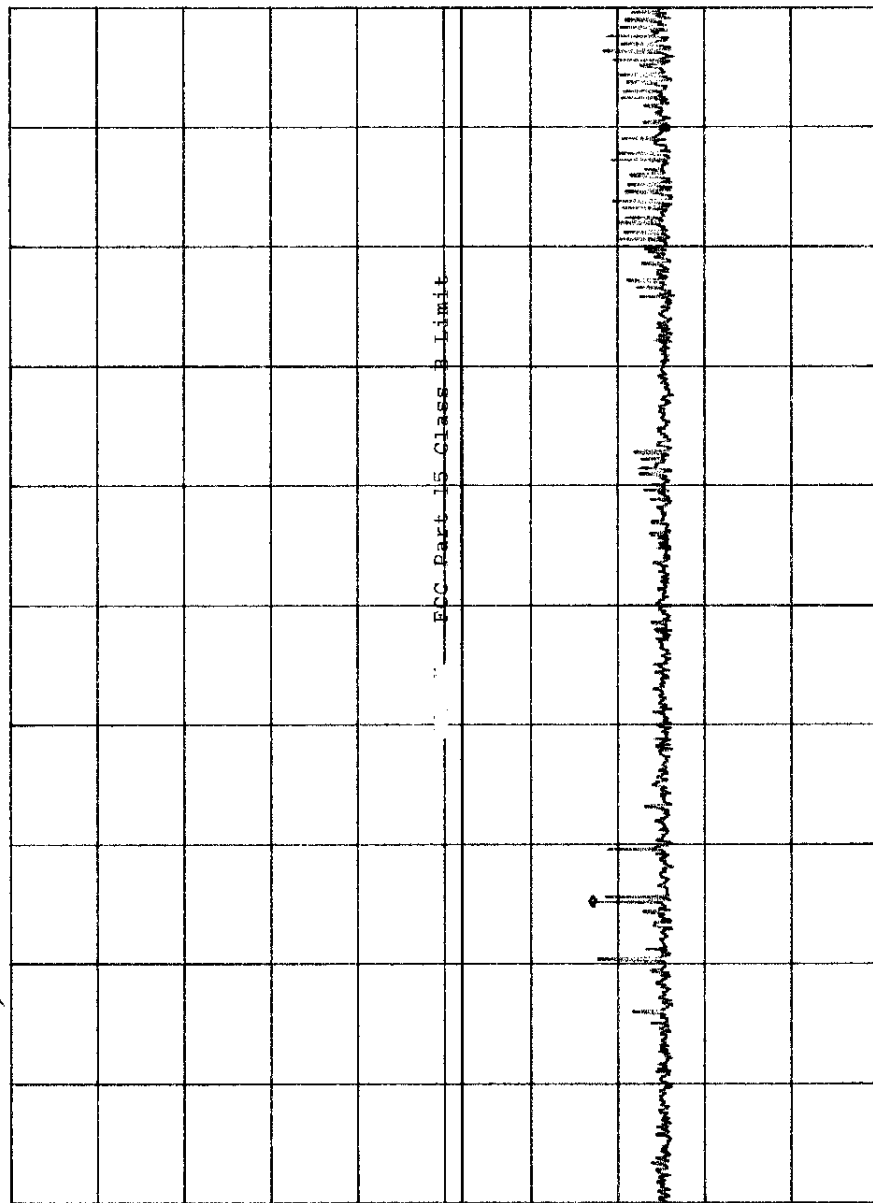
DL  
 48.0  
 dBμV



START 450 KHz RES BW 100 KHz VBW 100 KHz STOP 30.00 MHz  
 SWP 30 sec

GRAPH 2

AG TAG TRACKER s/n 20 L N I T/R 120 10/13/99 MKR 7.90 MHz  
 REF 100.0 dBμV ATTEN 10 dB 32.90 dBμV



10 dB/

OFFSET

1.5

dB

DL

48.0

dBμV

START 450 KHZ RES BW 100 KHZ VBW 100 KHZ SWP 30 sec STOP 30.00 MHz

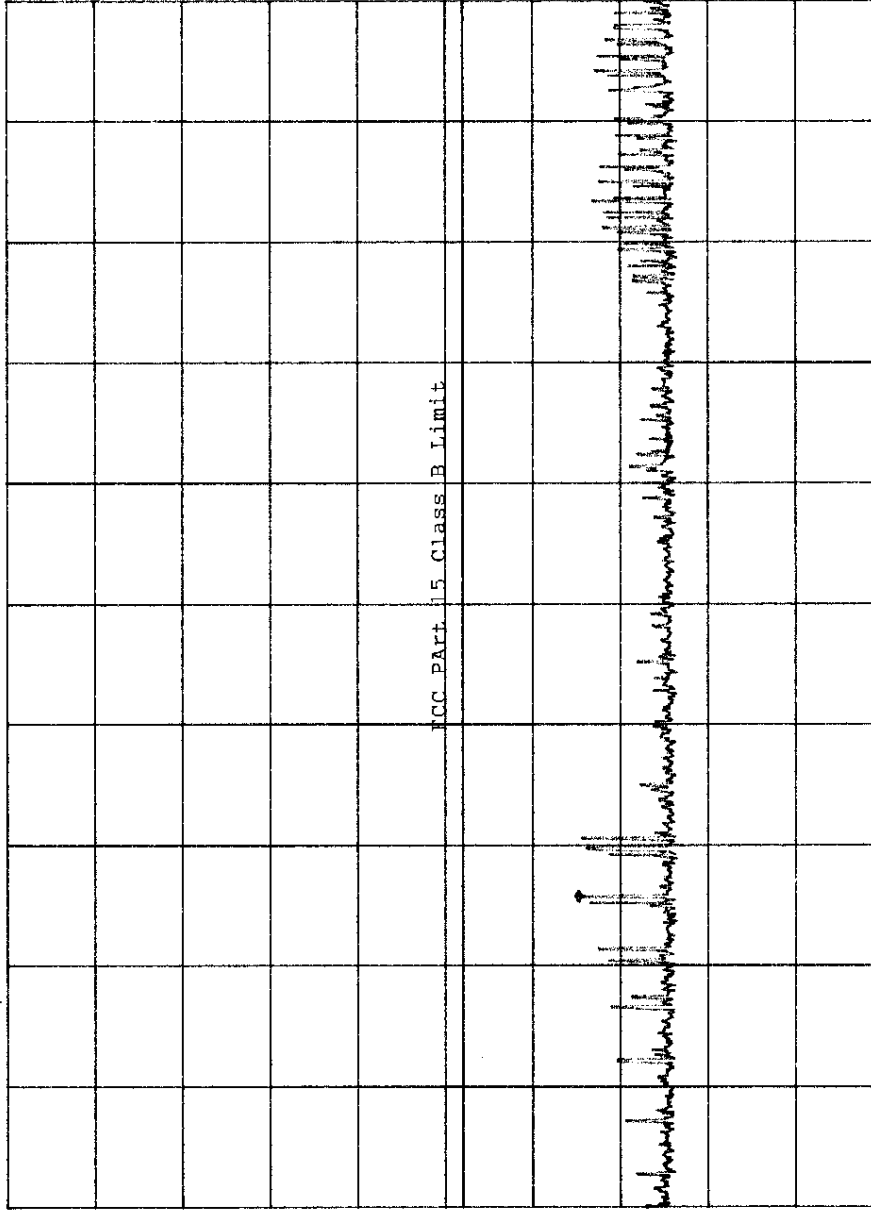
GRAPH 3

AG TAG TRACKER s/n 20 L N I T/R 120 10/13/99 MKR 8.04 MHZ  
 REF 100.0 dB $\mu$ V ATTEN 10 dB 34.80 dB $\mu$ V

10 dB/

OFFSET  
 1.5  
 dB

DL  
 48.0  
 dB $\mu$ V



START 450 KHZ RES BW 100 KHZ VBW 100 KHZ SWP 30 sec STOP 30.00 MHZ

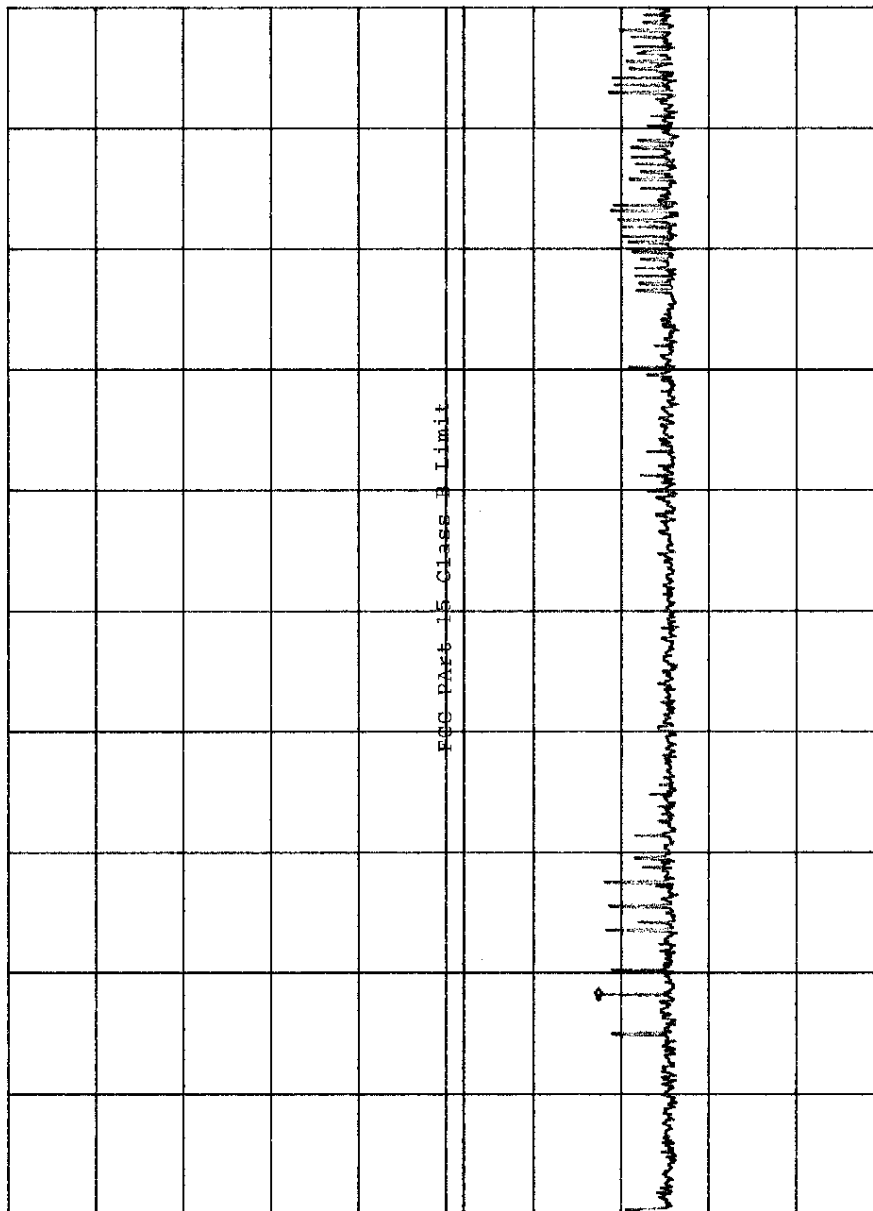
GRAPH 4

AG TAG TRACKER s/n 20 L N I T/R 120 10/13/99 MKR 5.83 MHz  
 REF 100.0 dB $\mu$ V ATTN 10 dB 32.60 dB $\mu$ V

10 dB/

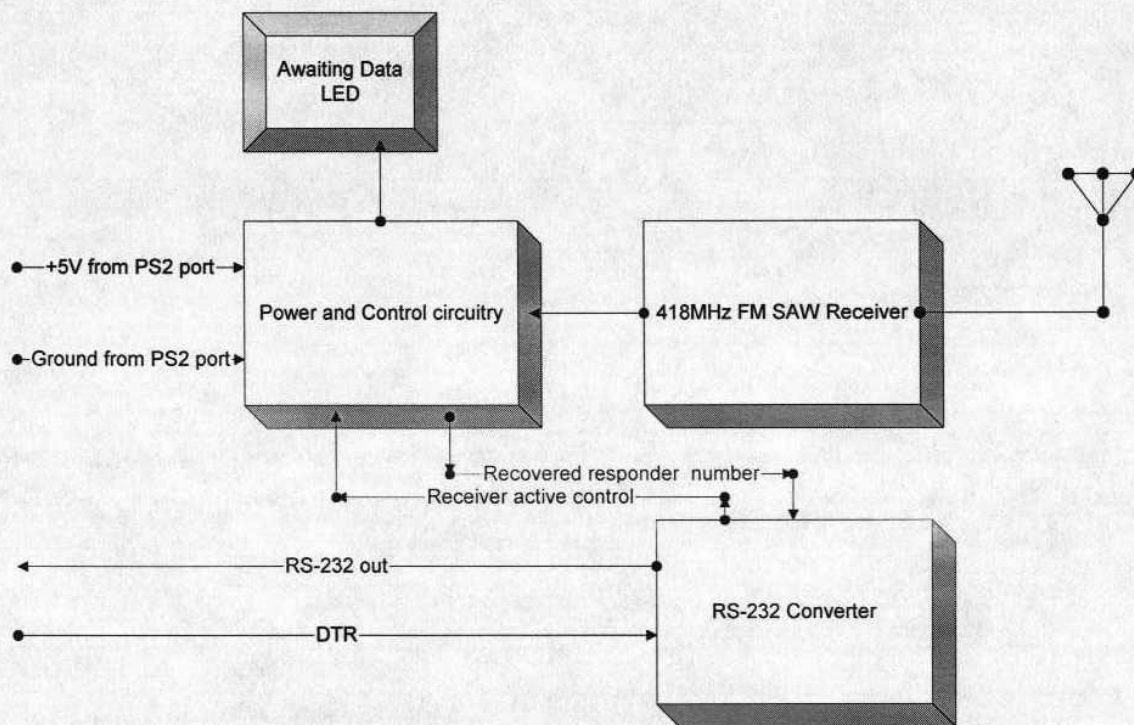
OFFSET  
 1.5  
 dB

DL  
 48.0  
 dB $\mu$ V



START 450 KHz RES BW 100 KHz VBW 100 KHz STOP 30.00 MHz  
 SWP 30 sec

## Tag Tracker Base Station Block Diagram



12-9-99 MJM  
Rev 1



## System Theory of Operation

The Tag Tracker Reading system is designed to relay passive responder ID numbers from a Food or Fiber commodity item or an operations identifier device thus "Tagged" to a standard off the shelf personal computer containing data base software supplied by AgInfoLink. Thus allowing an ongoing record of status and operations to the stated commodity.

The system consists of 3 elements:

- A) A Passive Integrated Transponder (PIT Tag or Responder). This device is magnetically powered and responds back via induction with a preprogrammed identifier number for the specific device being queried.
- B) A Tag Tracker Reader. This device is a battery powered hand operated unit that provides the magnetic field to power the responder as well as the inductive pickup function that converts the responder information into a coded digital format suitable for relay to the personal computer. The responder ID number is transmitted via RF link to a "Host" Interface connected to the PC. The Tag Tracker also receives an acknowledgement back from the personal computer verifying that the responder number was processed within the data base.
- C) A Host Interface unit. This device connects to an off the shelf personal computer via RS-232 interface. It derives it's power from the PS-2 port on the computer. It also provides a mouse extension connector. The host is an RF link that receives the responder identifier number from the Tag Tracker hand unit, de-modulates the identifier number and converts it to RS-232 format for relay to the PC.

The Tag Tracker hand unit is fully self contained and can only operate from an internal battery pack. Both the magnetic induction loop antenna coil and the RF link antenna are internal and are not field replaceable. There is no direct earth ground connection. RF virtual ground is supplied by the operator.

The Host Interface RF antenna connection is internal and is not field replaceable. Grounding is through the personal computer that the host is connected to and can be connected to ground through the computer if connected to the earth ground. It can also be connected to a laptop or palmtop computer which may not have any direct earth ground connection.