

SECTION 7

RF TECHNICAL INFORMATION

Tuesday, July 11, 2000

Tim Johnson
US Tech,
Alpharetta, GA

RE: RF1 Modular Approval.

Tim,
Here are my comments on the RF1 board.

- 1) The RF1 pcb wholly encloses the transmitter. The 10ppm reference oscillator and crystal, VCO, transmitter circuitry and PCB antenna is all on the RF1 pcb.
- 2) The unit is to certified as Part 15.249 at the 50,000uV/m intentional radiator limit, less than one milliwatt EIRP.
- 3) The active components are placed closely over power and ground planes, so we have found that whole assembly shielding has not been needed for proper operation. The current RF1 certification of the identical RF1 module installed in a DT100R yielded almost identical test results that the stand-alone RF1 measured, indicating that there was little effect or changes when enclosed within the DT100R.
- 4) The RF1 with modular approval will only be used within products engineered, manufactured and QC'd by Digitrax. The RF1 will also be employed in very similar packaging arrangements to the currently certified DT100R, containing the RF1.
- 5) The inputs to the RF1 are full swing CMOS levels, 0 to +5V. As tested in all configurations the maximum AM/CW power level and FM deviation levels were driven from the connecting CMOS logic control lines at maximum values. The CMOS control levels on all Digitrax equipment are the same and are set by internal precision 5 volt regulators. The RF1 employs its own internal precision reference to set and regulate its internal supply voltage from the raw +9 volt battery power. It only operates from battery power. So, we have full expectation that we can hold all the control inputs within tight tolerances and maintain emissions integrity.
- 6) As noted the PCB contains the antenna, so it is permanently attached and no modification or changes are possible.
- 7) We will add the modular certification ID, e.g. "FCC ID: LV3RF1" information marking to each RF1. We will also add the modular reference information to the outside of the devices the modular certified RF1 is added to.
- 8) The rest of the information on circuitry, schematic and other tech and company information is unchanged from our DR100R certification.
- 9) We authorize US Tech to act as our authorized Agent in this RF1 Modular approval for work with the FCC

Yours truly

AJ Ireland for Digitrax Inc.