

Statements of Compatibility with FCC Rules - Part 15.121, Pertaining to Scanning Receivers (ET Docket 98-76)

WiNRADiO Communications produces scanning receivers which cannot be modified in order to receive cellular frequencies. This is achieved by a combination of several key design features described in detailed statements below.

(1) Statement assessing the vulnerability of WiNRADiO receivers G3 series (180 MHz) to possible modifications and describes design features that prevent modifications of the receiver to receive cellular transmission (15.121 (a) (1)).

This receiver model has an upper frequency limit of 180 MHz (middle of VHF band), and is not capable of receiving anywhere near the 800 MHz UHF band. None of the essential blocks of the receiver (front end, VCO or mixer) are able to provide reception of bands in the 800 MHz range.

The front-end of the receiver has a hardware frequency limit of 180 MHz which is determined by a complex combination of fixed passive elements. The mixer component has an inherent construction frequency limit of 250 MHz. Finally, the VCO cannot be tuned above 225 MHz, due to both the physical limitations of the circuit and the firmware of the receiver (not programmable by the user).

(2) Statement that describes the design steps taken to make tuning, control and filtering circuitry inaccessible (see 15.121 (a)(2)).

The fixed front-end filters are not user-changeable and their change would require a major hardware redesign of the receiver front end.

The mixer component would need to be removed from the board (with great difficulty, as this is a special surface mount component difficult to remove without damaging the board), and replaced with another model available only from a specialized manufacturer.

The VCO circuitry would need to be totally redone to allow operation at the much higher frequencies, to the point of redesigning the entire PLL board of the receiver.

Tuning and control of the WiNRADiO receivers is accomplished using a microcontroller chip which is one-time programmable and cannot be reprogrammed by the user.

(3) 38dB rejection ratio test data and description of test method to determine compliance with the 38dB rejection ratio.

The low operating frequency of the receiver and the frequency plan of the receiver is such, that no images of frequencies in the range 824-849 and 869-894 MHz can possibly fall within the IF frequencies of the receiver. The image rejection ratio for these frequencies is therefore much higher than that required, and well below the sensitivity limits of standard test equipment. The following test was done to verify this:

An 824 MHz –30 dBm FM modulated signal was applied at the input of the test receiver. The entire range of the receiver was scanned in the receiver's scanning mode. The signal was not found on any frequency. The generator frequency was then incremented by 1 MHz, and the entire process was repeated to cover the entire cellular range 824-849 and 869-894 MHz, with the same result.