



Technisonic Industries Limited

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April 4, 2012

Subject: Class II Permissive Change Technical Details
Applicant: Technisonic Industries Limited
FCC ID: IMA90-6R

Dear Sir/Madam:

The following information is a detailed description of the changes made to the Technisonic Model TIL-90-6R VHF/AM transceiver which would allow 8.33 kHz channel spacing operation. This transceiver had previously been only capable of 25 kHz channel spacing operation.

Changes to 90-6R for 8.33 kHz Operation.

Audio Synthesizer Assy. 013501-1 replaces old Assy. 923064-1

The old Audio/Synthesizer assembly used discreet ICs and diode matrix for frequency programming. That design was incapable of dividing down to 8.33 kHz so a newer design using a single chip PLL p/n MC145193 was developed. The new PLL requires a microcontroller to program it. The microcontroller resides on the new Programmable Frequency Set Assembly 013502-1 (see below).

The old crystal heater reference oscillator was replaced by a temperature compensated oscillator module to provide the necessary 1ppm frequency stability for 8.33 kHz operation.

To attain the correct audio levels and eliminate audio oscillations on the Audio/Synthesizer assembly 013501-1, R1 and C3 (referenced on the old audio/synthesizer assembly) were removed, capacitor C41 was changed from .1uF to .027uF, and an additional .027uF capacitor C50 was added across the base and collector of Q3. R10 was changed from 10K to 26.7K. These changes were due to lower output from the DSP filter and Push Pull amplifier as described below.

DSP audio filter daughterboard Assy. 113824-1 replaces I.C. U1.

Audio filter IC p/n S3528 on assembly 013501-1 has become obsolete and furthermore is incapable of providing more stringent specifications required for 8.33 kHz audio filtering so a DSP daughterboard was designed to replace the IC. Value changes were required on the Audio/Synthesizer assembly to accommodate lower output from the DSP filter.

Push-pull Amplifier daughterboard Assy. 093753-1 replaces U1 p/n CA3020A IC on Audio/Synthesizer Assy. 013501-1.

Programmable Frequency Set Assy 013502-1 replaces old diode matrix programmable assembly 863116-1. The new assembly uses a microcontroller p/n MC68HC912B32 which was required to program the PLL chip on the audio/synthesizer assembly. It also allows for computer programming of the channels via USB instead of using diodes in a matrix to program the channels.

Regards

A handwritten signature in blue ink that reads "Steve McIntosh".

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