

Description of Modification

The purpose of this modification filing is to change the emission designator for the Telemotive Model E7651-X transmitter FCC ID: GXZ304E7651. The current emission designator is 12K0F1D. The new designator will be 10K0F1D. The change is requested so that the transmitter can be used on the 12.5 kHz bandwidth channels.

In addition, the transmitter also complies the 01/01/2005 spectrum efficiency standard of one voice channel per 6.25 kHz of channel bandwidth by virtue of its TDM (Time Domain Multiplexing) Technology. Four of these transmitters can be used simultaneously on the same channel creating an spectrum efficiency in excess of the requirement.

No changes to the modulation scheme are needed for this change. The new necessary bandwidth was based on a measurement of the occupied bandwidth (20 dBc) rather than the computation as listed in the original filing. Based on the measurements, the occupied bandwidth was 10 kHz under the conditions of transmitting at its maximum data rate of 4800 Baud.

Since the emission mask requirements for the 12.5 kHz bandwidth channel are significantly different from the 25 kHz bandwidth channel, some minor modifications were required in order to meet the lower spurious emission requirements. The modifications are described in detail on the following pages. In any case, the changes did not effect the basic frequency and stabilizing circuitry, frequency multiplication stage, basic modulator circuit or maximum power output level.

We are requesting this change so that our users can make better use of the frequency spectrum as provided under the current rules.

TELEMOTIVE

INDUSTRIAL CONTROLS

DATE: 5/20/1999

SUBJECT: MODIFICATIONS MADE TO E7651-X TRANSMITTER TO MEET
NEW FCC REGULATIONS FOR PART 90.

There are three main areas to be addressed for compliance to the new FCC regulations. They are occupied bandwidth, conducted emissions, and radiated emissions. The transmitter's original occupied bandwidth was already in compliance so no changes were made to the modulation level or to any of the modulation circuits. There were no changes made to the oscillator circuit or to the components used in its design. The basic design of all multiplier stages has not been changed. Therefore none of the parameters that would effect the stability of the transmitter have been changed. However the original transmitter did not meet specifications, by a few db, for both conducted and radiated emissions. To correct this, hand wound inductors in the matching circuits for the multipliers were changed to surface mount and the output filter to the antenna was redesigned for increased rejection of harmonics and again all inductors were changed to surface mount. Minimal changes were made to the PCB and those were only to change to the surface mount inductors and to eliminate jumpers. The only other change made to the PCB was the addition of feed through holes along the perimeter of the board. This connected the ground planes on both sides of the board together at the edges to improve the effectiveness of the transmitter's shields, which will now be soldered to the ground plane along its entire length.



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