



August 22, 2005

TUV Rheinland of North America – TCB
And Federal Communications Commission

Gentlemen:

Pursuant to the requirements of FCC Rules Part 2.1043 this letter is to attest to the changes to the Elster Electricity meter, FCC ID: QZC-RX9, No modifications have been made to the basic frequency determining and stabilizing circuitry (including clocks and data rates), frequency multiplication stages, basic modulator circuit or maximum power or field strength ratings. These items are all identical to the design that was initially submitted for certification. The changes that were made to the design are primarily to the printed circuit board to improve grounding, decoupling and RF bypass integrity. There were a couple of other changes to reduce circulating harmonic currents on the printed circuit board to further reduce radiated harmonic emissions to increase the compliance margin for radiated emissions. The changes are as follows:

- The buried printed circuit ground plane has been extended under the radio circuits. This was done to improve the bypassing and decoupling in the transmitter circuits and most particularly to improve the attenuation of radiated transmitter harmonics. This change is not visible in the photos, as the affected layer is buried in the interior of the printed circuit board.
- SAW filter, SF2, in the path from U8 to U7 has been eliminated. This was installed in the original design in an ineffective attempt to reduce harmonic emissions, but had no effect, as the harmonics are primarily generated in the power amplifier, U7.
- R11 in the interstage pad between U8 and the PA, U7, was reduced from 68 ohms to 56 ohms to increase the attenuation of the pad in order to reduce drive to the PA to compensate for the removal of the insertion-loss of SF2. Reduction of the excess drive to the PA is intended to further reduce harmonic emissions and increase the compliance margin for radiated emissions compliance
- L8, the DC feed inductor for the PA is increased from 3.9 nH to 56 nH and is connected to the load end of the PA output matching network in the new implementation of the transmitter. This is done in order to further reduce circulating transmitter harmonic currents that might reach the DC power lead that feeds the power amplifier.



The unit-to-unit consistency and repeatability in RF output levels is significantly improved.

Respectfully,

A handwritten signature in cursive script that reads "Charles Cunningham, Jr.".

Charles Cunningham, Jr.

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