Explanation for internal behavior of FT-0405-U

2002/4/3

1. As instructed, we have performed the radiated emission measurements from this device for frequency below 30MHz.

2. The intentionally radiated frequency is 600kHz. All the other frequencies are unintentionally radiated.
   In order to understand better, we would like to provide further explanation in addition to the previously provided information. Please refer to the attached block diagram.

A. Sensor coils
   As shown in the photograph and the circuit diagram, the sensor board has two groups of multiple loop coils in X (horizontal) and Y (vertical) directions. Radio frequency energy is radiated from these coils.
   Each coil is approximately 30mm wide and as long as the height, for X-axis, and width, for the Y-axis, of the effective area of the tablet as shown in the photograph. Each coil consists of 6 turns (loops) of copper conductor.

B. Original oscillation frequency and intentional radiated frequency
   The intentional radiated frequency is created by dividing the original oscillation frequency of 6MHz in CPU. This signal is supplied to the sensor coils in a time-sharing manner.

C. Operation
   The tablet looks for a pointing device, such as a stylus or a puck, by feeding electrical current of above-mentioned frequency through the coils in both X-axis and Y-axis. The current fed through each coil is not more than 40mA.
   The tablet is able to detect the position of a pointing device because of the induction caused between the coil of the pointing device and two coils, one from X-axis and the other from Y-axis, of the sensor board.
   The tablet is designed in such a way that not more than one coils, X-axis or Y-axis, is used at same time to detect the position of the pointing device. The signal is emitted for about 40usec up to about 1msec from one coil and the duration is controlled by the firmware on the sensor board.

D. Comment on pointing device
   The device operates completely passively and has no battery or active oscillator.