Answer to FCC Questions

Q3:

The original filing for the transmitter module and the cover letter provided by Research in Motion have not indicated this transmitter cannot operate at less than 100% duty factor and SAR has been tested at 100% duty factor. It is unclear whether the timing plots provided by the applicant are based on the Mobitex transmission protocol, where the duty factors are operation based therefore do not qualify for source-based time-averaging considerations, or if the timing plots are based on other considerations.

Please clarify with more detailed explanations on how the timing sequences shown on the plots are derived in order for us to determine if they can be accepted for source-based time-averaging considerations. The applicant may want to consult with the transmitter module manufacturer (Research in Motion) regarding applicable source-based time-averaging considerations.

A3:

1. IVICM's handheld radio implements a duty cycle limiting algorithm to inhibit the radio from transmitting at all times when a fixed duty cycle limit could be exceeded. This duty cycle limiting algorithm is implemented in firmware which is permanently installed in the handheld during production process in the factory. Once installed in the handheld, the user cannot change, or disable this firmware algorithm.

   This firmware algorithm measures the transmit ON time, and the transmit OFF time. From these data, it calculates the current duty cycle by dividing the ON time by the sum of the ON time, and OFF time. Before it enables the radio to transmit, it first calculates the would-be duty cycle based on the total length of the packet it has to send. If this would-be duty cycle could exceed the fixed limit, it will not enable radio transmission until the transmit OFF time has accumulated so much that it can guarantee the would-be duty cycle will not exceed the fixed limit. Since this algorithm performs both real-time measurement, and advance duty cycle calculation, it can ensure that the operating duty cycle is less than the fixed limit at all times to provide a safety margin. The duty cycle limit is fixed at 15%, which is permanently stored in firmware, and cannot be modified, or disabled by the user. This 15% limit is less than the 20% that is required of IVICM's handheld based on 100% duty cycle SAR measurement of the handheld.

2. IVICM has tested this firmware algorithm at UltraTech. The timing plots were part of the results from the testing, which were measurements based on the Mobitex transmission protocol. The timing plots serve the purpose of having verified that the measurement, and duty cycle calculation performed by this algorithm are valid. The testing at UltraTech also verified that no RF transmission was measured by the test equipment when this algorithm inhibited radio transmission at the point when the duty cycle could be exceeded.

Q4:

Please confirm that this device is designed for hand-held used only, to be operated in a person's hands, and there are no body-worn operating provisions. If the low duty cycle is not applicable, operating instructions should be included in the users manual to inform users of the specific hand-held operating requirements for meeting FCC RF exposure compliance.

A4:

This device is designed hand-held use only, and following is the sequence of steps required to process a transaction:

1. Hold the unit in the hand and press the <Enter> Key to power up the terminal (The terminal is automatically turned off when left in idle mode).
2. Start a transaction by swiping the customer card.
3. Hand the unit to the customer to enter TIPS and the PIN number if required. After the customer enters this information, transmission of information to the RF network begins.
4. As soon as the terminal receives transaction approval, it prints the receipt.
5. The operator turns off the terminal. If the operator does not, the terminal will automatically power down.

- As mentioned above, the terminal needs human intervention to operate. There is no auto power up feature or background activity that would power up the terminal without operator intervention.