The test proposal with the dipole antennas is acceptable with either of the following optional modular approval restrictions. However, in addition we require that additional prescan testing must be made to ensure that the dipole antennas are rotated and folded as described in the addendum to ensure that the worst case is tested.

1) The module is approved for use as long as the same dipole antennas, or dipole antennas with identical properties, are used. However, the dipole antennas may be placed with different relative spacing to each other.

2) The module is approved for use as long as the same dipole antennas, or dipole antennas with identical properties are used, AND the relative antenna spacings must be maintained exactly as in the measurement case that was used for regulatory approval.

We want additional testing with regard to the PCB antennas. We need more information on how the OEM will construct and install these antennas. What would be the highest gain of the PCB antenna? What instructions are given to the OEM to construct and install these antennas? How do you ensure that the installation of the PCB antenna at different locations on the motherboard will comply with spurious emissions? We are concerned that spurious emissions with different PCB antenna layouts and installations will not comply with the technical requirements. If only the PCB antennas as shown in the attached document are used, tested and OEM installed as shown, then the following is applicable for the PCB antennas.

A) The module is approved for use as long as the same PCB antennas are used and installed AND the relative antenna spacing is maintained exactly as in the measurement case that was used for regulatory approval

If you want more flexibility for PCB antennas, additional testing and information is needed. For example, testing will have to be submitted to ensure that varying the construction(length, thickness and shape), installation (spacing and location) of the PCB antennas will not affect the emissions. The position/location of the PCB antennas relative to ground plane(s) and other PCB components such as oscillators or high frequency components need to be addressed.

A TCB can authorize this device with the dipole antennas as long as the filing is for mobile exposure conditions. The device uses a simple array antenna design with no new technology issues. The array consists of two low gain antennas with a total antenna gain of less than 6 dBi. The test proposal for determining the total output power and total antenna gain agrees with methods we have allowed for phased array systems. Due to approval as a mobile device, no SAR issues are involved.

As indicated, additional information is needed for approval of the PCB antennas. A copy of this letter and both the original proposal with addendum(attached) must be submitted in the TCB filing. Further guidance prior to TCB approval will be required for <u>any</u> changes to the device(antenna, RF circuitry etc…). Because the proposal does not indicate the developer/manufacturer, the TCB must inform the FCC when this device is filed.