



To: Kwok Chan / Frank Coperich, Federal Communications Commission
From: Paul Moller
Date: July 30, 1998
Subject: FCC ID IHDT6ND1

cc: John Kalenowsky

Kwok / Frank,

This memo is in response to "Questions regarding the SAR report portion of your filing" for FCC ID IHDT6ND1, correspondence ID 2054, received via email on July 20, 1998. Please accept the following revised paragraph 3 (additions and changes shown in *italic*) and supplemental paragraph 7.

- 3) The subject phone was tested only in the left side talk position and held in a position as described in the Motorola users manual. The unit is equipped with a telescoping quadrifilar helix antenna that serves as both a receive and transmit antenna. The operation of the Iridium™ system is such that the subscriber unit must be in communication with satellites in low earth orbit. This means that the subscriber units antenna must have a clear view of the sky above the users head at all times. Thus the antenna is designed so as to have three positions. The first position is the "stowed" position where the antenna is rotated behind the subscriber unit. In this position the user would not be able to place or receive a phone call. This position is available for convenience of storage. The second position is the "retracted" position where the antenna is pointed towards the zenith, but is kept in its shortened telescoping dimension. The third position is where the antenna is also pointed towards the zenith, but is in its long telescoping dimension referred to as the "extended position". Furthermore, the antenna can rotate to either of two detented positions which are roughly 30 degrees to the left and roughly 30 degrees to the right. These are intended to keep the antenna pointed to the zenith in both the left and right handed talk positions. Figures 3 and 4 show the unit configured for left handed talk position, in the extended and retracted positions respectively.

Due to the design of the antenna, the RF currents that contribute most to the SAR measurement are the currents at the base of the antenna. Due to the construction of phone and antenna mast, the base of the antenna is always at least several centimeters away from the users head. Thus the RF currents on the face of the phone are very low and the resulting SAR is dominated by the RF currents at the base of the antenna. Since the base of the antenna is several centimeters from the user, the maximum SAR is low enough so as to be difficult to measure. Also, since the antenna is mounted at the center of the phone, the location level of highest SAR is essentially the same for both the left and right side talk positions. Any differences between left and right side that show up are within measurement error, and are more controlled by phone positioning than by any real left / right difference.

- 7) The peak power of the probe and measurement system measure the average of the RF signal that is generating the SAR. In the case of the subject phone, the average power is 0.6 Watt which is well within the linear range of the probe. In order to measure the average value of the RF signal, the measurement system measures over a time period long enough to capture two pulses of the 11 Hz signal. The sampling speed is then increased until the peak to average ratio of the SAR reading is the same as the peak to average ratio of the actual RF envelope. This ensures that the measured average RF level is correct.

If you have any further questions please give me a call at 847-523-5210.

Paul Moller