Assessment Notes by BABT as TCB for the 9010 Portable Data Terminal

For Symbol Technologies Inc under FCC ID number H9PLA3021-100

BABT file number US/000041

I have reviewed the TÜV-PS SAR test report WS611452 issue 1 in respect of the above product and I have the following comments:

The expanded measurement uncertainty is shown on page 11 at 20.57%, which is acceptable for this kind of measurement. The body simulant fluid was correctly calibrated within 5% of the target values and the measurements were taken within 100MHz of the calibrated frequency of the fluid, which was 2450MHz.

Important note to FCC reviewer:

This device is a mobile computer terminal for scanning and general data applications. The maximum measured SAR level at 2402 MHz is 1.538W/kg for 1g averaging. This is less than the limit for the general population of 1.6W/kg averaged over 1g but it is considered to be outside acceptable limits at the measurement uncertainty involved. The manufacturer declared that the device would be subject to usage conditions of 1cm separation from the body. A declaration of this nature is attached to this submission. Tests were performed at a distance of 1.0cm from the body simulant fluid at several frequencies and the maximum measured SAR value was found to be 0.293W/kg at 2402 MHz and 0.656 at 2480 MHz for 1g averaging. These results are obtained under CW mode working which will not occur in practice.

The device is not designed to be used close to the body and will normally be hand held therefore no special training is required to use the device to limit RF exposure therefore this equipment has been tested for general population usage. When carrying the device the user will either hand carry the equipment or use a belt-clip, which contains no metal parts and maintains a distance of 1.0cms from the users body. It is viewed that this device DOES MEET the SAR requirements for a body-worn device for use by the general population even allowing for worst-case measurement uncertainties. Appropriate Grant conditions have been applied to this submission.

I confirm that I have undergone SAR awareness training by the FCC at the TCB Council workshops in August 2001, February 2002, April 2002 and October 2002.

Alan Binks
Certification Manager, BABT
21st August 2003

1.3 TEST RESULT SUMMARY - Continued

MAXIMUM SAR VALUES

The following is a summary of the maximum SAR values found during the assessment.

FHSS 2450 MHz Specific Absorption Rate (Maximum SAR) 1g & 10g Results for Symbol MC9010 placed against the Flat Phantom (Body SAR) with a separation distance of 0.0mm

Position	Channel Number	Frequency (MHz)	Max Spot (W/kg)	Max 1g SAR (W/kg)	Max 10g SAR (W/kg)	Area scan (Figure number)
Phantom: 2mm Side Device: Touch – LCD side	1	2402	0.52	0.359	0.156	Figure 18
Phantom: 2mm Side Device: Touch – End –on	1	2402	N/A	N/A	N/A	Figure 19
*Phantom: 2mm Side Device: Touch – Right Hand side	1	2402	2.25	1.538	0.624	Figure 20
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) & 2.0 W/kg (10g)						

*Client requested a 1.0cm separation distance from side of flat phantom for the completion of the assessment, see below for the results.

FHSS 2450 MHz Specific Absorption Rate (Maximum SAR) 1g & 10g Results for Symbol MC9010 placed against the Flat Phantom (Body SAR) with a separation distance of 10 mm.

Position	Channel	Frequency (MHz)	Max Spot (W/kg)	Max 1g SAR (W/kg)	Max 10g SAR (W/kg)	Area scan (Figure number)
Phantom: 2mm Side Device: 10mm Gap – Right Hand side	Bottom	2402	0.39	0.293	0.136	Figure 21
Phantom: 2mm Side Device: 10mm Gap – Right Hand side	Middle	2441	0.56	0.425	0.194	Figure 22
Phantom: 2mm Side Device: 10mm Gap – Right Hand side	Top	2480	0.86	0.656	0.296	Figure 23
Limit for General Population (Uncontrolled Exposure) 1.6 W/kg (1g) & 2.0 W/kg (10g)						