Assessment Notes by BABT as TCB for the Sagem DC2006a Mobile Phone.

For Sagem Communications under FCC ID number M9HDC2006A

BABT file number US/000133

I have reviewed the TÜV-PS SAR test report WS615361/01 issue 3 in respect of the above product and in conjunction with the Part 15/22/24 and Part 15C radio and EMC reports OR615361/02 Issue 3 and OR615361/03 Issue 2 and I have the following comments:

The test equipment used was an IndexSAR SARA 2 measurement system and expanded measurement uncertainty is shown on page 40 of the SAR report at 22.90%, which is acceptable for this kind of measurement. The head and body simulant fluids were correctly calibrated within 5% of the target values and the measurements were taken within 100MHz of the calibrated frequency of the fluids. The laboratory is well practiced at providing this testing service and the staff involved have untaken regular training sessions with the FCC, TCB Council and BABT.

Important note to FCC reviewer:

The device is a dual-band GSM/GPRS mobile phone with Bluetooth connectivity. The device can also be used with a (wired) headset and this forms part of this assessment. The testing programme adequately reflects the complexity of the device and was performed using both head and body (box) phantoms and includes a representative set of headset and body-worn test configurations.

This device contains two transmitters, one is a 850/1900 MHz GSM/GPRS transmitter, the second is the Bluetooth transmitter which is only a Power Class 2; 4 dBm device and hence is normally exempt from SAR testing. The manufacturer has declared that the composite device is capable of co-transmission and therefore a co-transmission test was performed to verify there were no unusual effects. These were performed at the worst case GSM frequencies and at the mid-band Bluetooth frequencies. The separate, worst-case SAR values for normal General Population uncontrolled exposure use are summarised below.

Summary of highest measured SAR Values in Normal Use Positions:

Band	Position	Channel	Frequency (MHz)	Max Spot SAR (W/kg)	1g SAR (W/kg)	SAR drift dB	Area Scan (Figure #)
GSM head 850MHz	RH to Cheek	189	836.4	1.400	1.194	-4.760	Figure 9
GSM/GPRS 850MHz	Rear to Phantom 15mm separation	128	824.2	0.910	1.052	-0.990	Figure 15
GSM Head 1900MHz	LH to Cheek	810	1909.8	0.470	0.380	-0.570	Figure 22
GSM/GPRS 1900MHz	Rear to Phantom 15mm separation	661	1880.0	0.400	0.508	-2.450	Figure 24
Limit for General Population (uncontrolled exposure) 1.6 W/kg (1g)							
* Note these are worse case results in a position not designated for normal use.							

Co-transmission with Bluetooth activated:

Band	Position	Channel	Frequency (MHz)	Max Spot SAR (W/kg)	1g SAR (W/kg)	SAR drift dB	Area Scan (Figure #)
GSM 850MHz	Rear to Phantom 15mm separation	128 & 39	824.2 & 2441	0.800	0.963	-2.470	Figure A1
GSM 1900MHz	Rear to Phantom 15mm separation	661 & 39	1880 & 2441	0.390	0.501	0.920	Figure A2
Limit for General Population (uncontrolled exposure) 1.6 W/kg (1g)							
These figures are worst case in normally designated position.							

Justification:

The maximum measured SAR value for the mobile phone was obtained at 836.4 MHz and is 1.194W/kg for 1g averaging. The corresponding worst case value for 1990 MHz was 0.508 W/kg and was obtained at 1880.0 MHz. This is less than the limit for the general population of 1.6W/kg averaged over 1g.

The device will normally be hand-held to the head but could used with a (wired) headset. Measurement results for body-worn configurations included the use of a headset and no adverse effects were discovered. 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 "Carrying Accessory" with no metal parts and positions the equipment 1.5cm from the User's body. There are adequate warnings about using a "Carrying Accessory" which must not contain metal parts on page 50 of the User Manual and which maintains a distance of 1.5cm from the user's body. The SAR values quoted in the User Manual on page 48 are accurate and appropriate information has been provided to enable the user to limit personal SAR exposure and to use the mobile phone safely without hazarding third-parties.

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, October 2002, May 2004 and May 2005. Other staff involved in the test work and the independent assessment of the technical documentation have also undergone appropriate FCC related training and their names have been notified to the FCC.

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