NOKIA MOBILE PHONES
Sami Savela

2000-4-18

Evaluation of SAR in Body Worn Configurations for Nokia phone 8260,

FCC ID: GMLNSW-4DX.

Introduction

Our approach was to measure the SAR, when a phone is used with body worn accessories or is against the Flat Phantom. Body worn accessory SKB-3 Belt Clip (figure 1) was tested. The measurement test equipment and setup was the same as used and referred in SAR TEST REPORT of NOKIA 8260.

Figure 1. Belt Clip SKB-3

Test method

Measurements were done with the Dasy 2 dosimetric assessment system DAE V2, SN: 213 and with the generic Twin Phantom version 3 from Schmid & Partner Engineering Ag. The phone was positioned in body worn accessory against Flat Phantom. Additionally, the device was positioned against the Flat Phantom i.e. display and keypad touching the phantom. The point of maximum SAR was searched. Then the SAR was measured with a 3-dimensional cube measurement. The maximum output power in middle channel was used. The method overestimates the SAR, because brain equivalent liquid was used and this has higher conductivity than tissues in the body.

Results

Graphical presentations of two test position with the highest SAR values are presented in the end of this report.

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Analog mode AMPS, in Belt Clip BCH-12U

meas. nr:	Phone position	Frequency MHz / channel	Power [dBm]	SAR (1g) [mW/g]
1	Body Worn, Belt clip against Flat Phantom	836 / 383	22.8	0.83
2	Body Worn, Display against Flat Phantom	836 / 383	22.8	0.93
FCC ID: GMLNSW-4DX MEASURED: 2000-2-19/NMP		FCC limit		1.60 [mW/g] (ANSI/IEEE)

Digital mode TDMA (Cellular), in Belt Clip BCH-12U

meas. nr:	Phone position	Frequency MHz / channel	Power [dBm]	SAR (1g) [mW/g]
1	Body Worn, Belt clip against Flat Phantom	836 / 383	26.9	0.83
2	Body Worn, Display against Flat Phantom	836 / 383	26.9	0.93
FCC ID: GMLNSW-4DX MEASURED: 2000-2-19/NMP		FCC limit		1.60 [mW/g] (ANSI/IEEE)

Digital mode TDMA (PCS), in Belt Clip BCH-12U

meas. nr:	Phone position	Frequency MHz / channel	Power [dBm]	SAR (1g) [mW/g]
1	Body Worn, Belt clip against Flat Phantom	1880 / 1000	26.0	0.89
2	Body Worn, Display against Flat Phantom	1880 / 1000	26.0	0.47
FCC ID: GMLNSW-4DX MEASURED: 2000-2-19/NMP		FCC limit		1.60 [mW/g] (ANSI/IEEE)

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Summary

The SAR values found for the portable cellular phone (FCC ID: GMLNSW-4DX) are below the maximum recommended levels of 1.6 mW/g.

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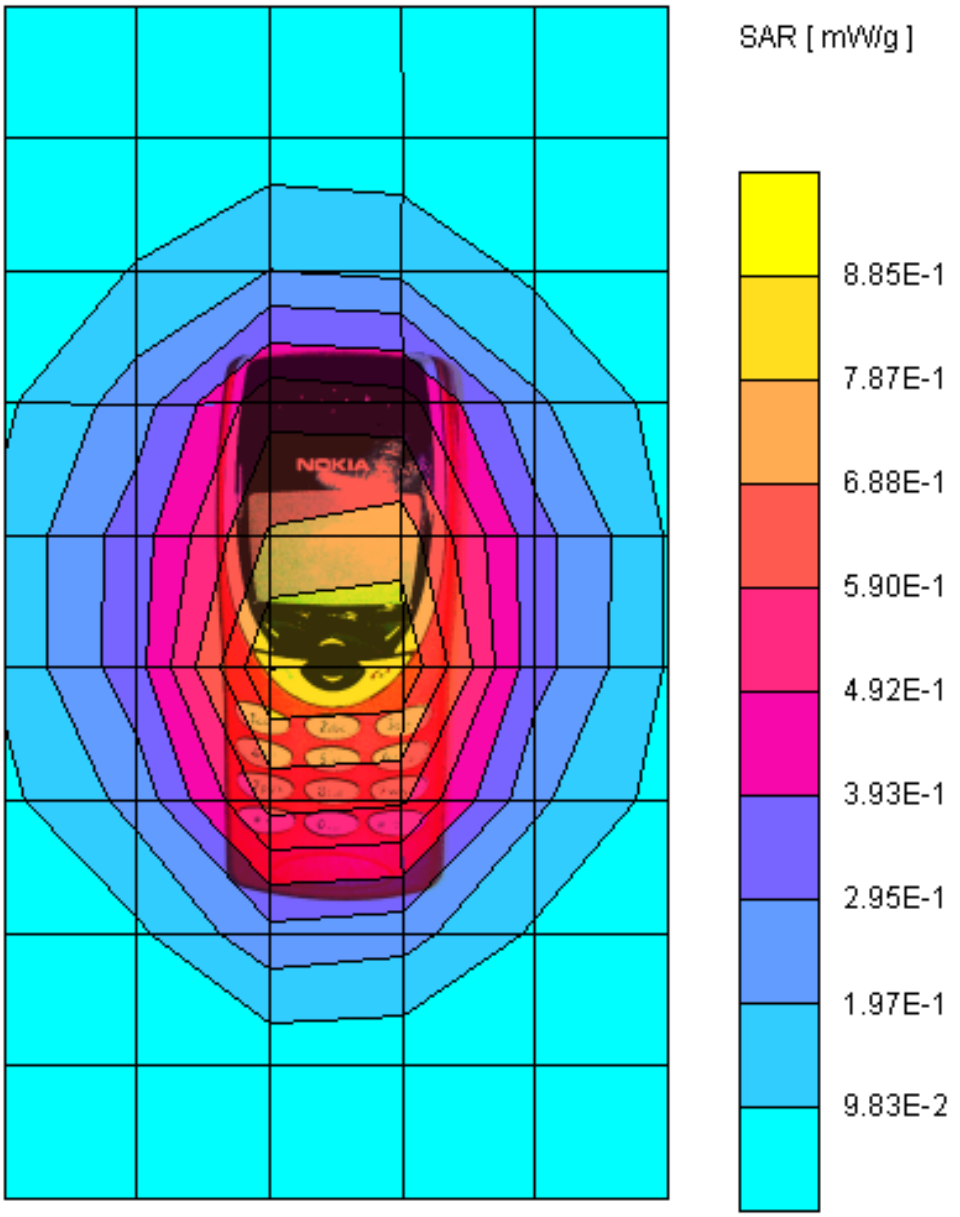
FLWIN.MEA

σ = 0.80 [mho/m] ε_r = 44.3 ρ = 1.00 [g/cm^3]

Coarse Grid Dx = 20.0 Dy = 20.0 Dz = 5.0 [mm]

SAR [mW/g] Max: 0.89

SAR (1g): 0.926 [mW/g] SAR (10g): 0.652 [mW/g]



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FLWOUT.MEA

σ = 1.75 [mho/m] ε_r = 41.5 ρ = 1.00 [g/cm^3]

Coarse Grid Dx = 15.0 Dy = 15.0 Dz = 5.0 [mm]

SAR [mW/g] Max: 1.36

SAR (1g): 1.19 [mW/g] SAR (10g): 0.580 [mW/g]