

March 18, 2003

FCC QUESTION ON PROVIDING FULL PC SAR SCANS OF ASKEY COMPUTER CORPORATION 802.11 a/b CARDBUS CARD INSERTED INTO A TOSHIBA LAPTOP COMPUTER

FCC ID# H8NWLC221-D4

Host Computer: Toshiba Satellite Pro 6100 System

Model: PS610U-AAAA5

SAR Report originally submitted: January 27, 2003

Question #7b. **Response:**

A photograph of the bottom side of the Toshiba Satellite Pro 6100 Laptop Computer with the Askey Corporation Model WLC221-D4 Cardbus Card is given as Fig. A. Marked here are the various regions 1-12 each of dimension 5.6×8.0 cm that have been individually scanned for SAR distributions with a coarse scan resolution of 0.8 cm (8 mm) each. The locations of the individual scan regions vis à vis the Toshiba PC base of dimensions 33.0×28.7 cm are given in Fig. B.

Since the measured peak 1-g SAR was the highest for the Above-Lap Condition for an irradiation frequency of 5.26 GHz in the normal mode, all 12 regions were scanned for the SAR values at a depth of 4 mm in the phantom fluid for the cardbus card in the normal mode at 5.26 GHz. Given in Figs. C to N are the measured SAR distributions for regions 1-12, respectively. For convenience of comparison, all of the measured SAR distributions are shown with the color scale as that in Fig. C for region 1. Also included are the measured SAR distributions for all 12 regions given as Tables 1-12, respectively. As expected, the SARs are the highest for region 1 immediately above the antenna location for the cardbus card (this region is below the ground plane of cardbus card for an actual placement of the PC above the laptop). Furthermore, even for this region 1, the highest SAR region is highly localized occupying an area of approximately 2×2.5 cm in physical extent.



Fig. A. A photograph of the bottom side of the Toshiba Satellite Pro 6100 Laptop Computer with the Askey Corporation Model WLC221-D4 Cardbus Card inserted in it. Marked here are the various regions 1-12 each of dimension 5.6×8.0 cm that have been scanned for SAR distributions with a coarse scan resolution of 0.8 cm (8 mm).

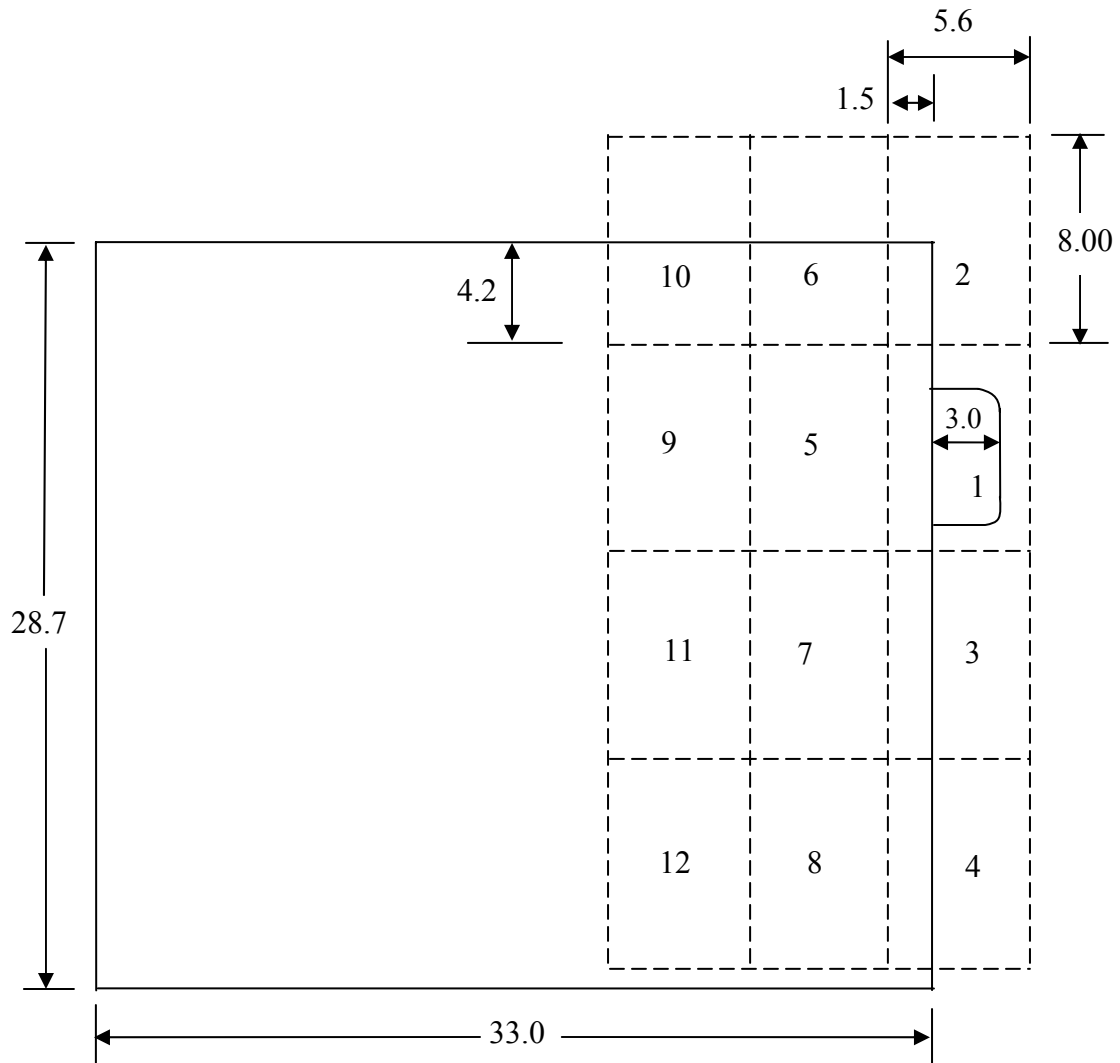


Fig. B. A sketch of the base of Toshiba PC indicating the locations of the individual scan regions 1-12. All dimensions are in cm.

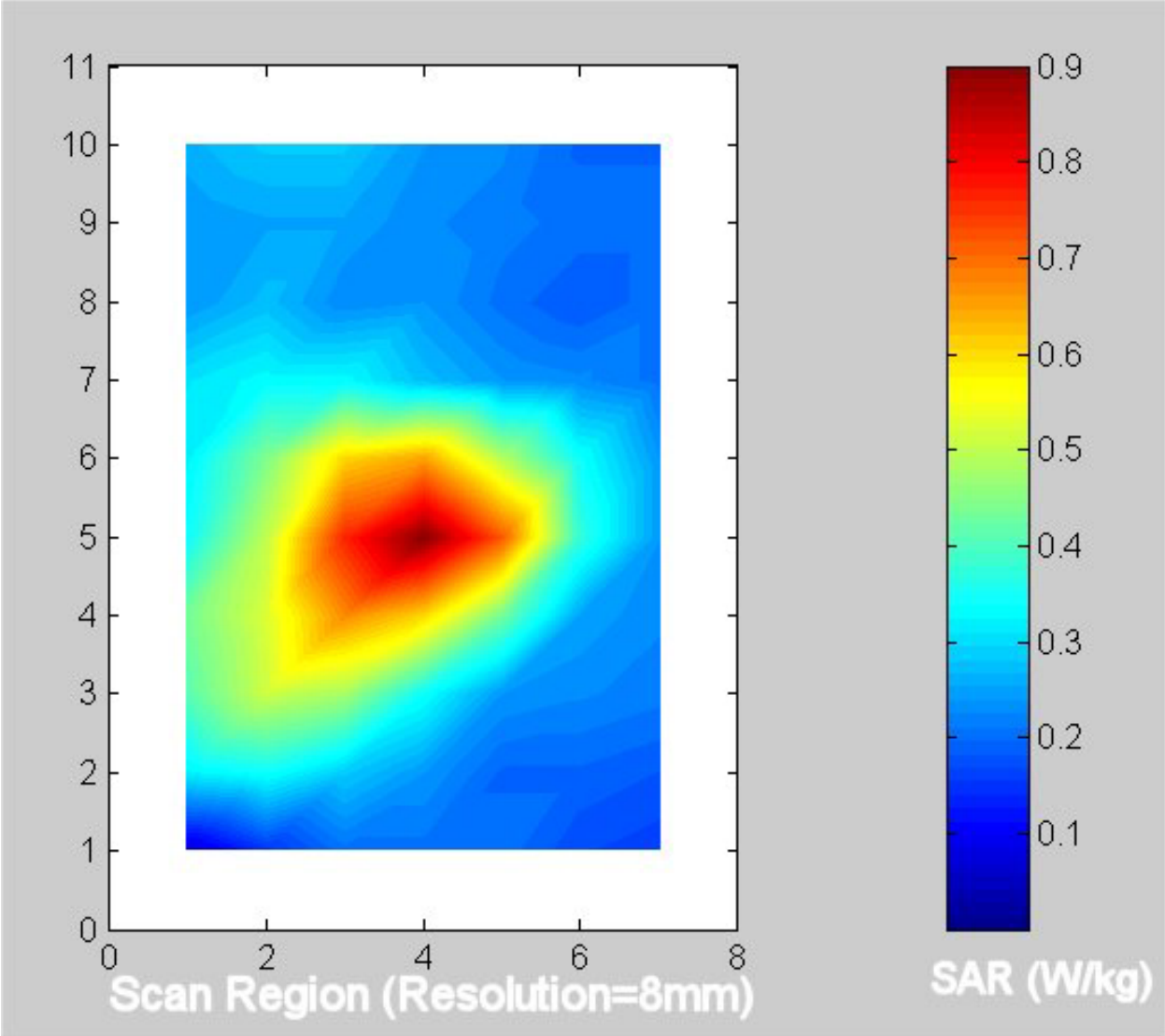


Fig. C. The measured SAR distribution for region 1 marked in Figs. A and B.

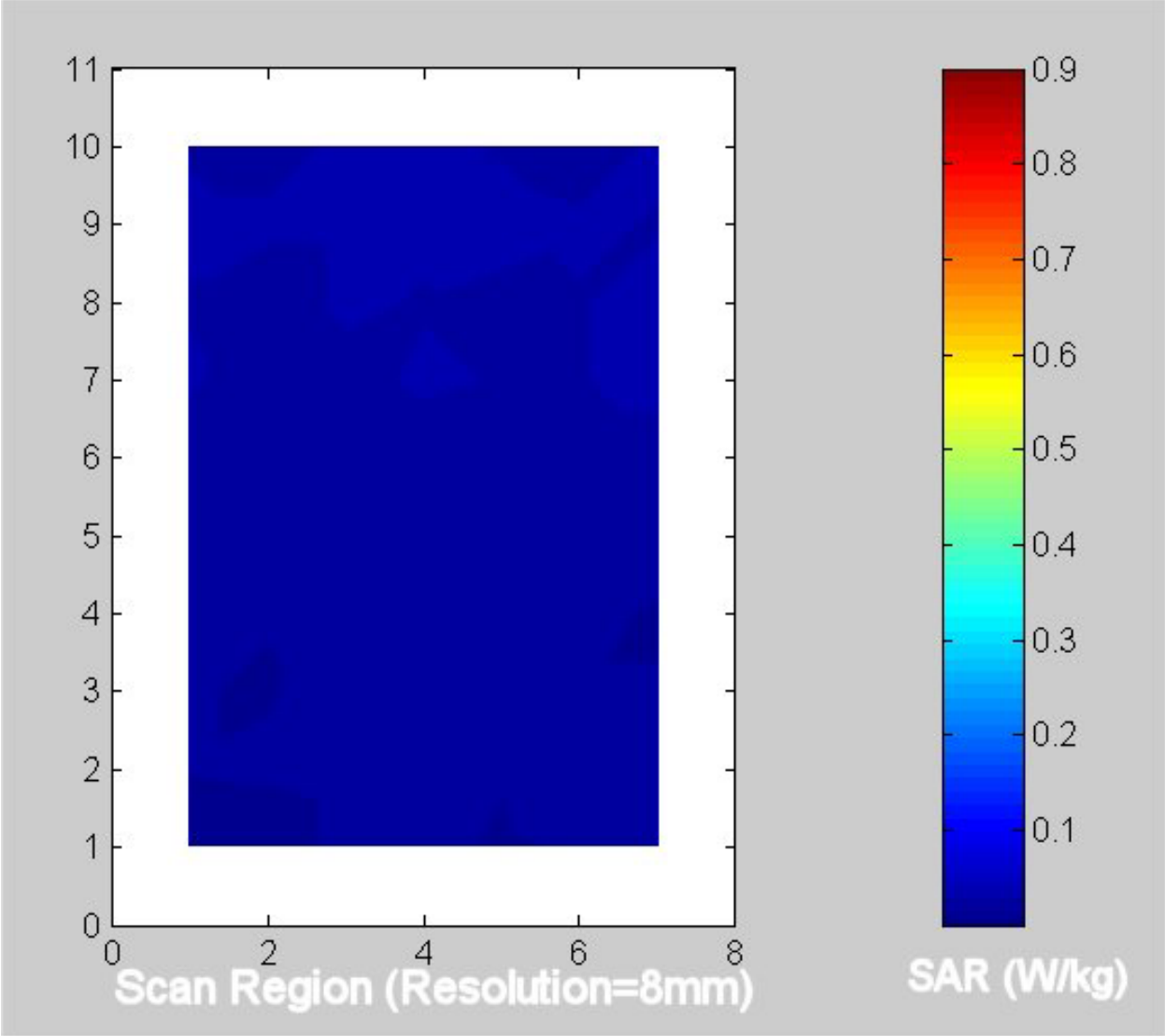


Fig. D. The measured SAR distribution for region 2 marked in Figs. A and B.

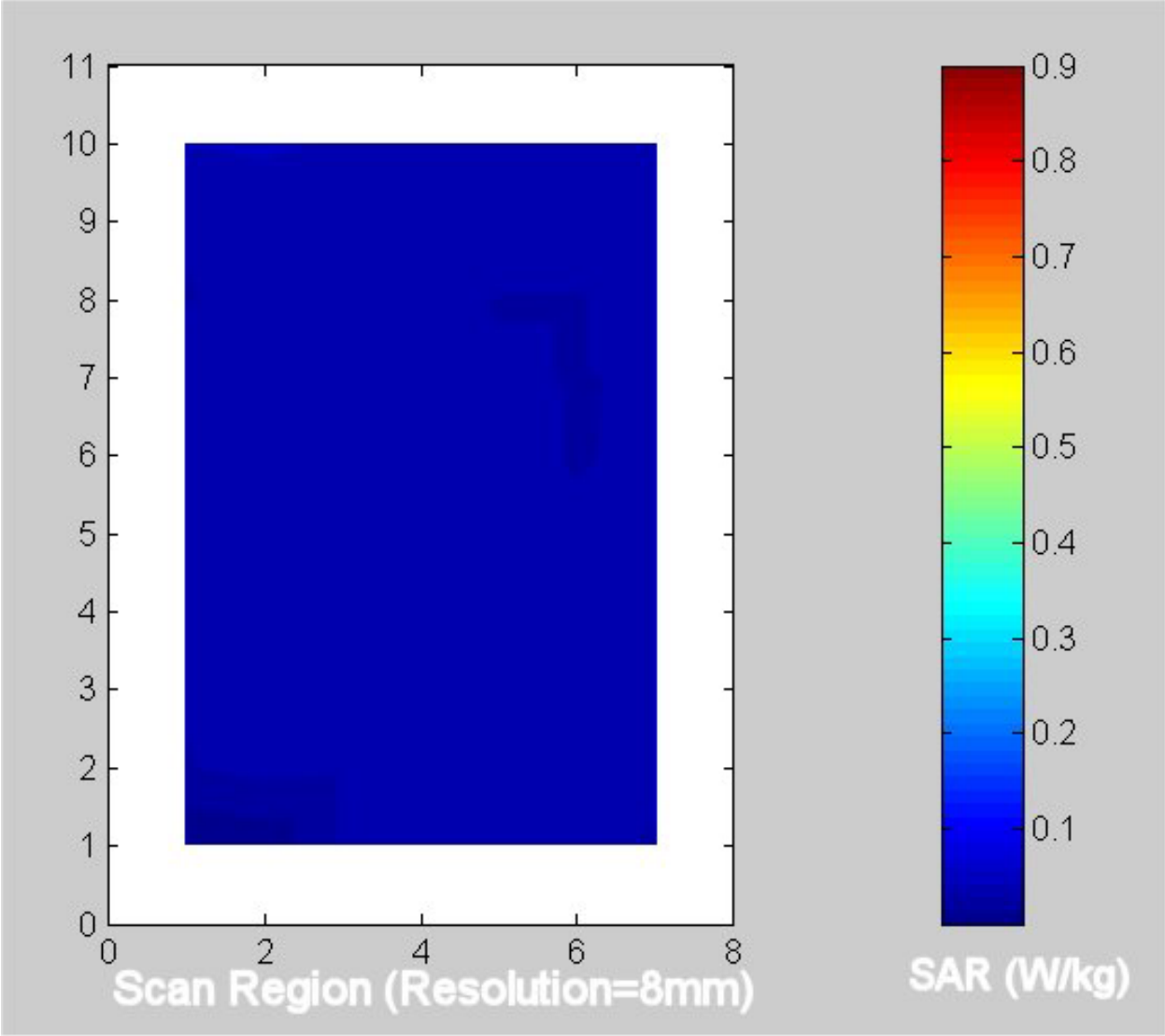


Fig. E. The measured SAR distribution for region 3 marked in Figs. A and B.

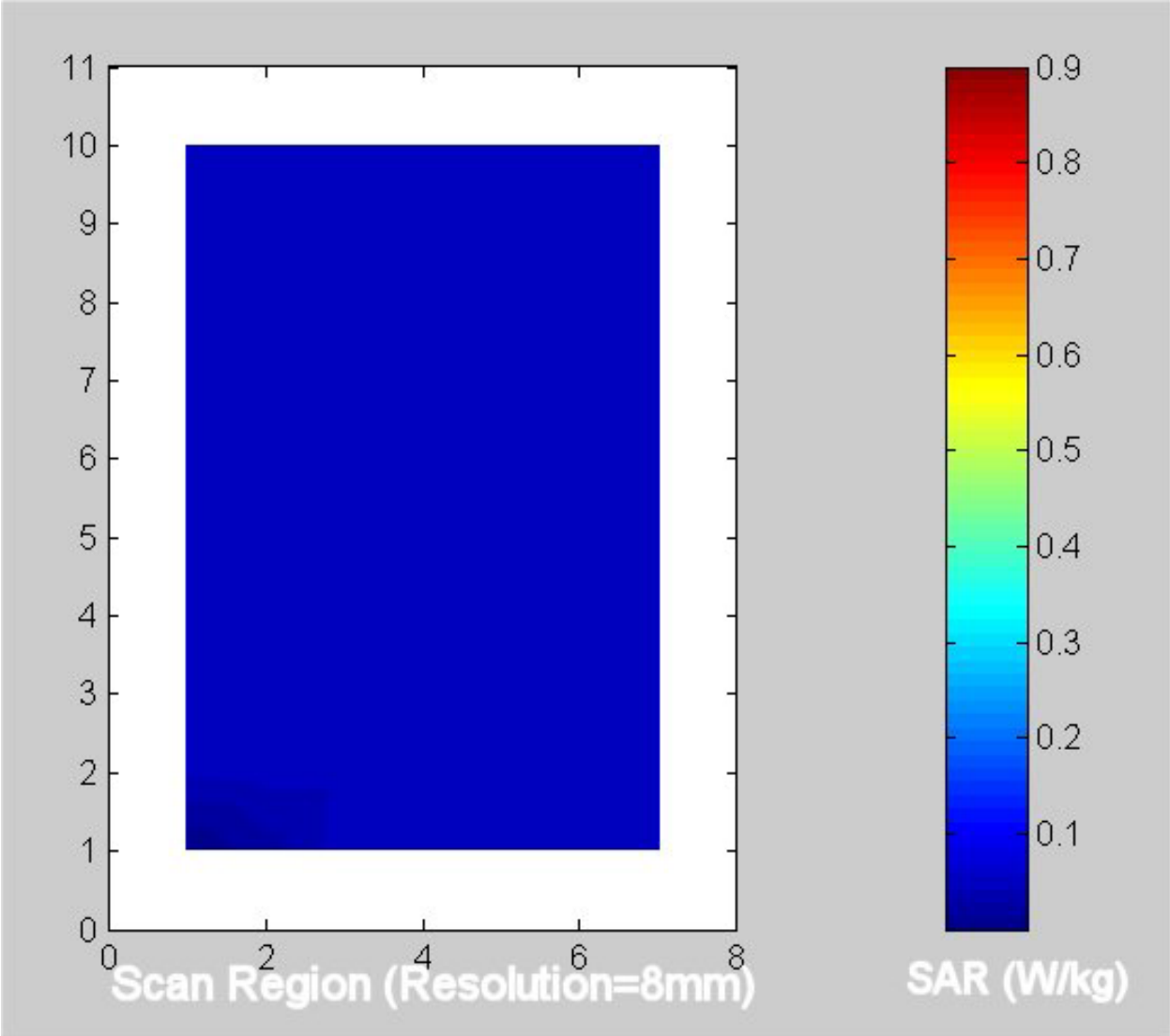


Fig. F. The measured SAR distribution for region 4 marked in Figs. A and B.

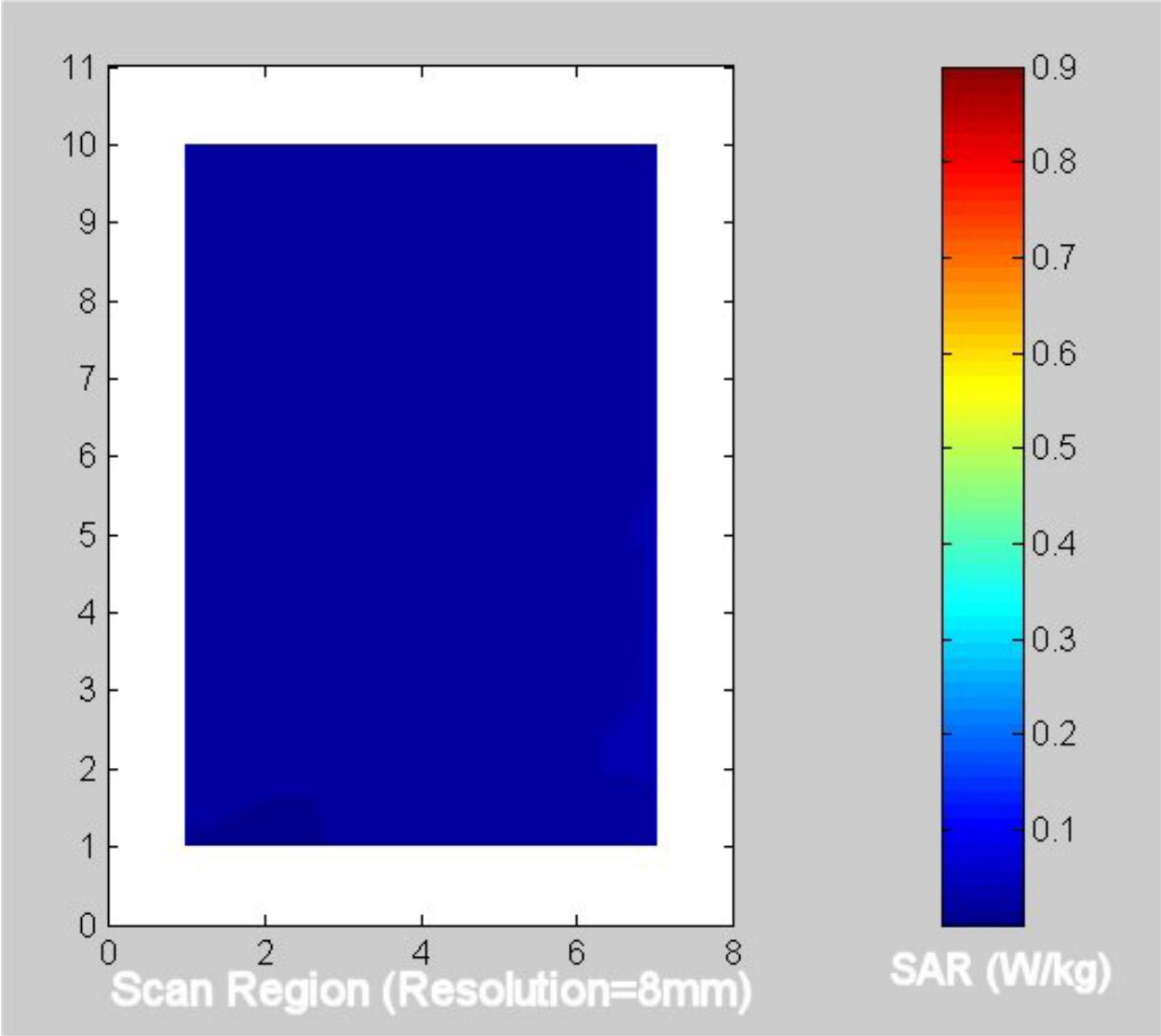


Fig. G. The measured SAR distribution for region 5 marked in Figs. A and B.

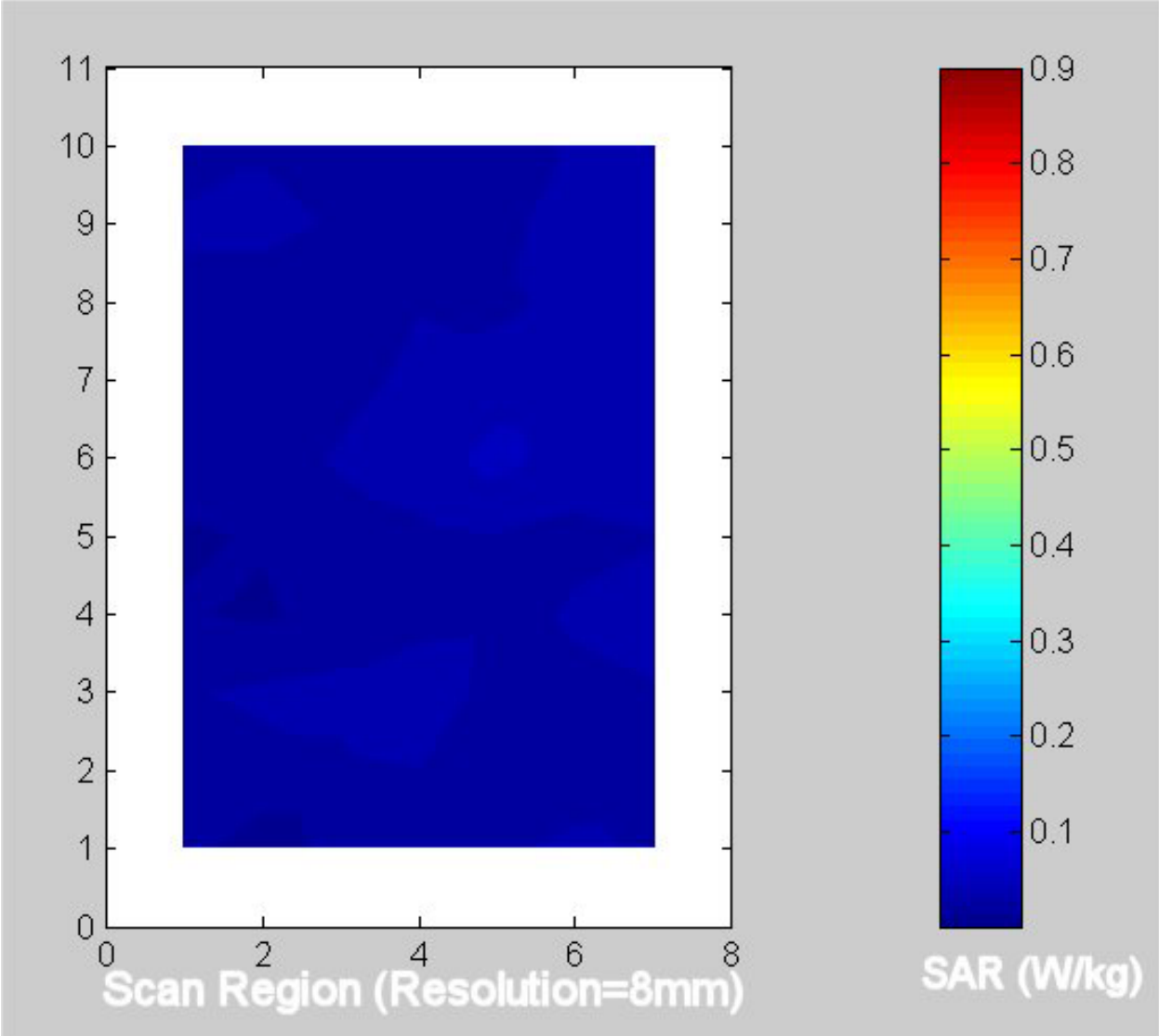


Fig. H. The measured SAR distribution for region 6 marked in Figs. A and B.

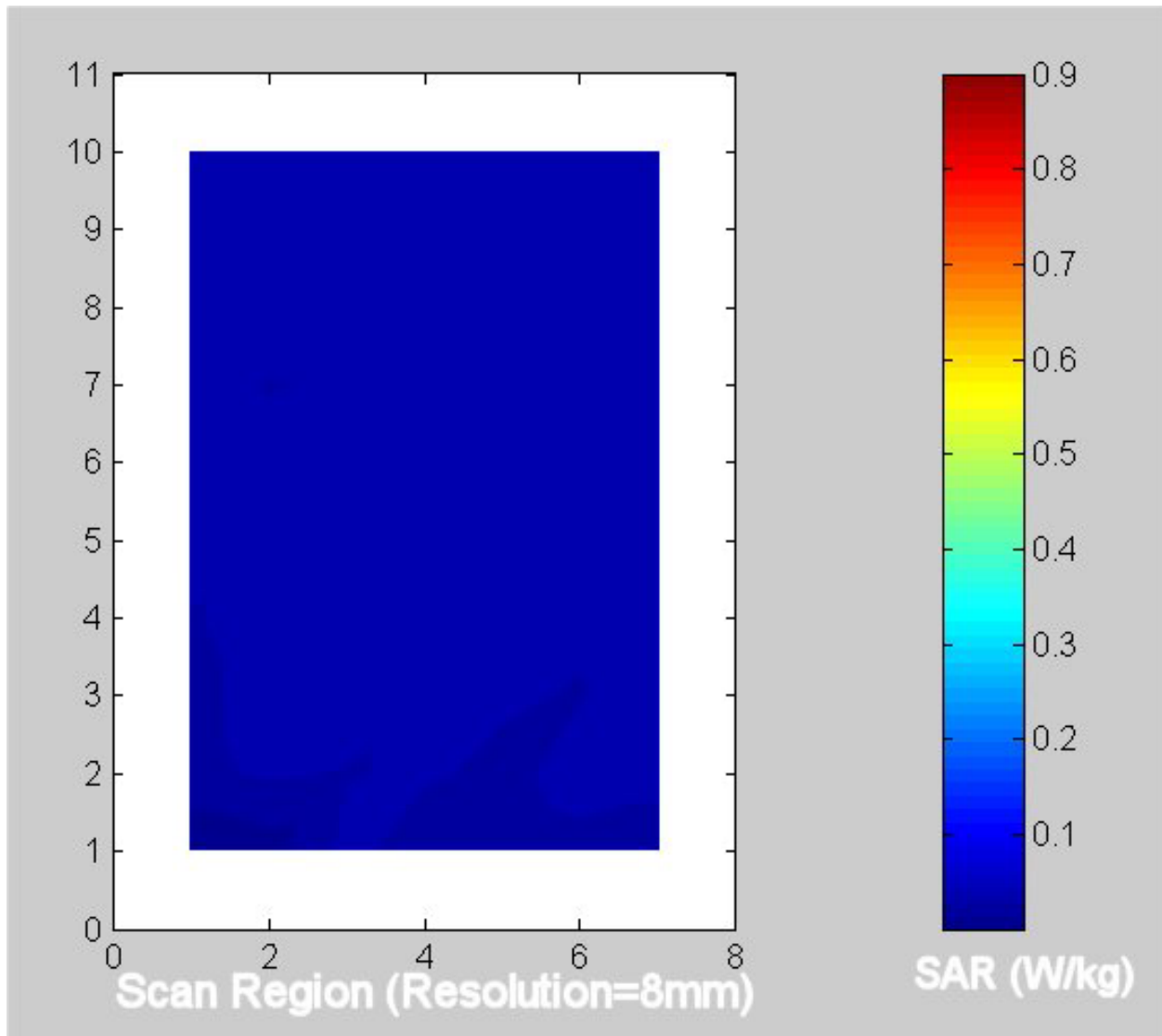


Fig. I. The measured SAR distribution for region 7 marked in Figs. A and B.

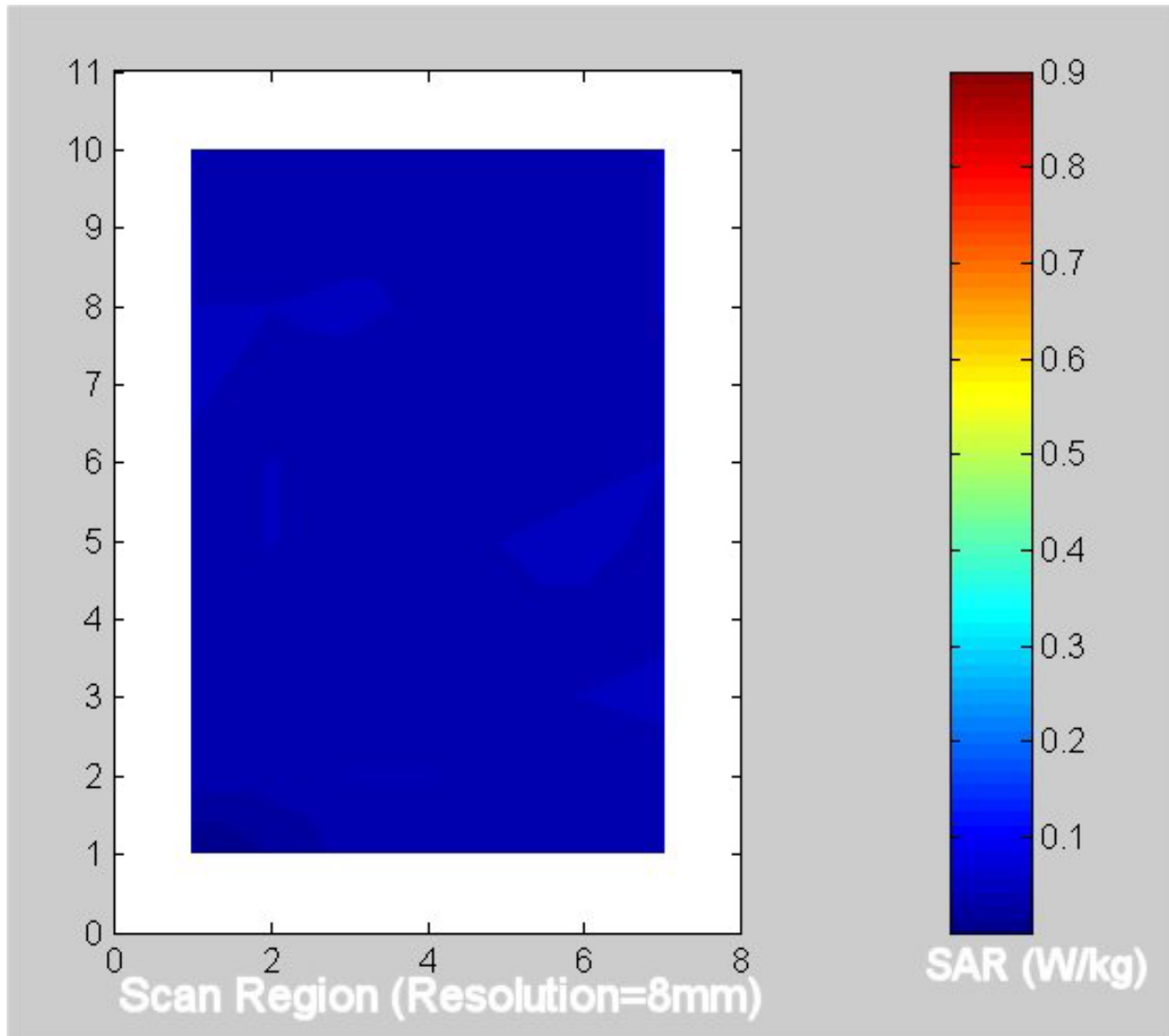


Fig. J. The measured SAR distribution for region 8 marked in Figs. A and B.

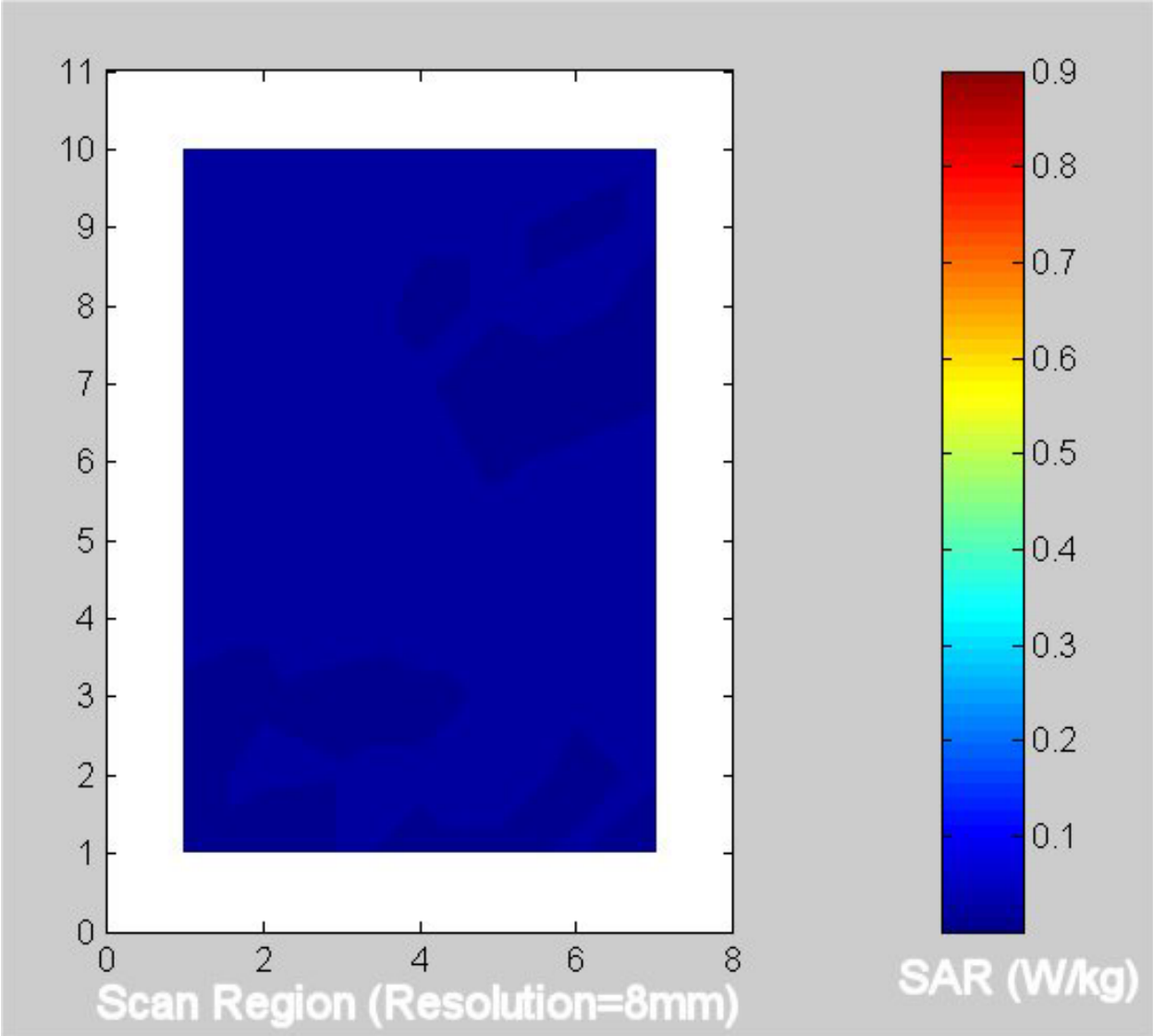


Fig. K. The measured SAR distribution for region 9 marked in Figs. A and B.

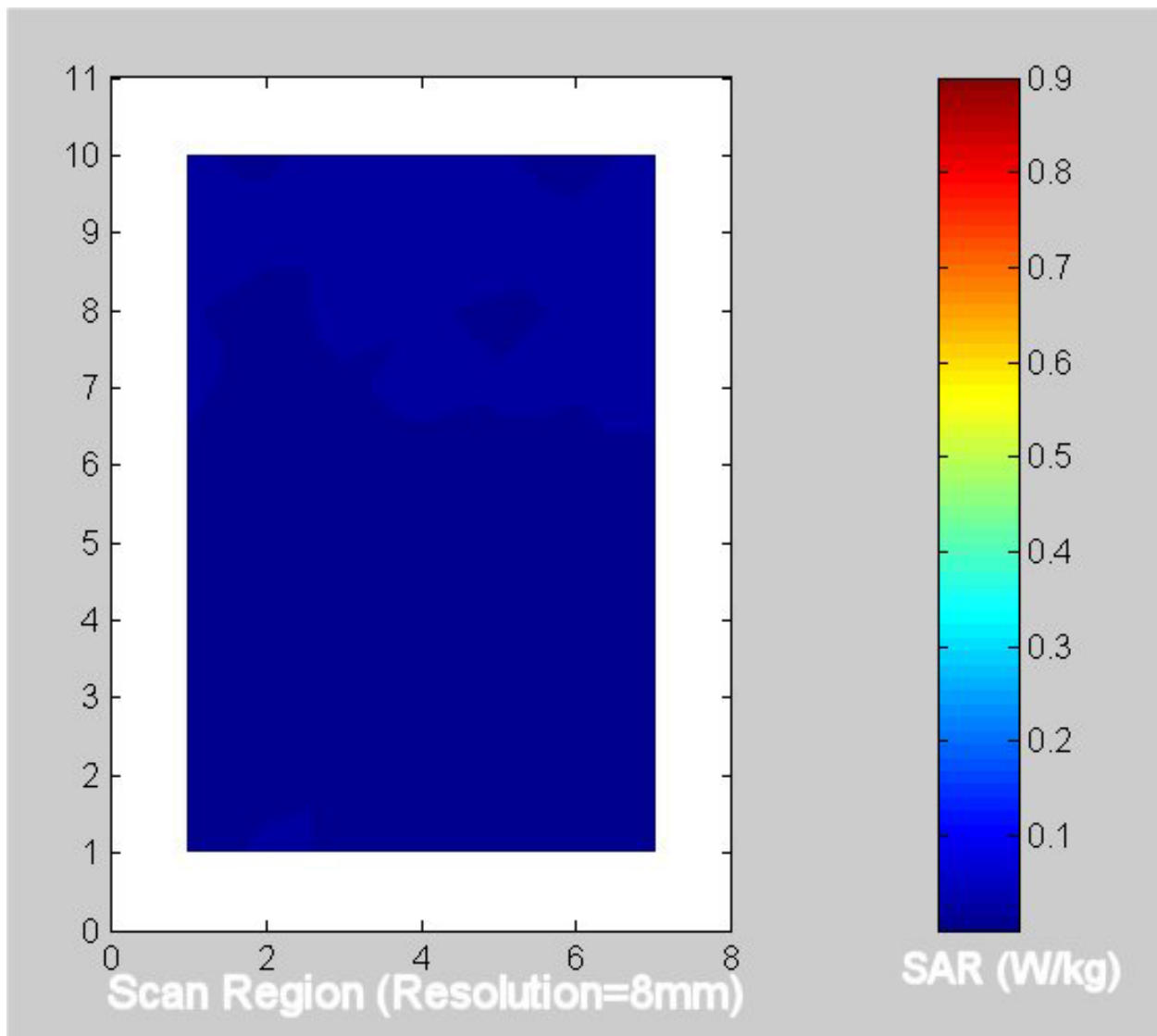


Fig. L. The measured SAR distribution for region 10 marked in Figs. A and B.

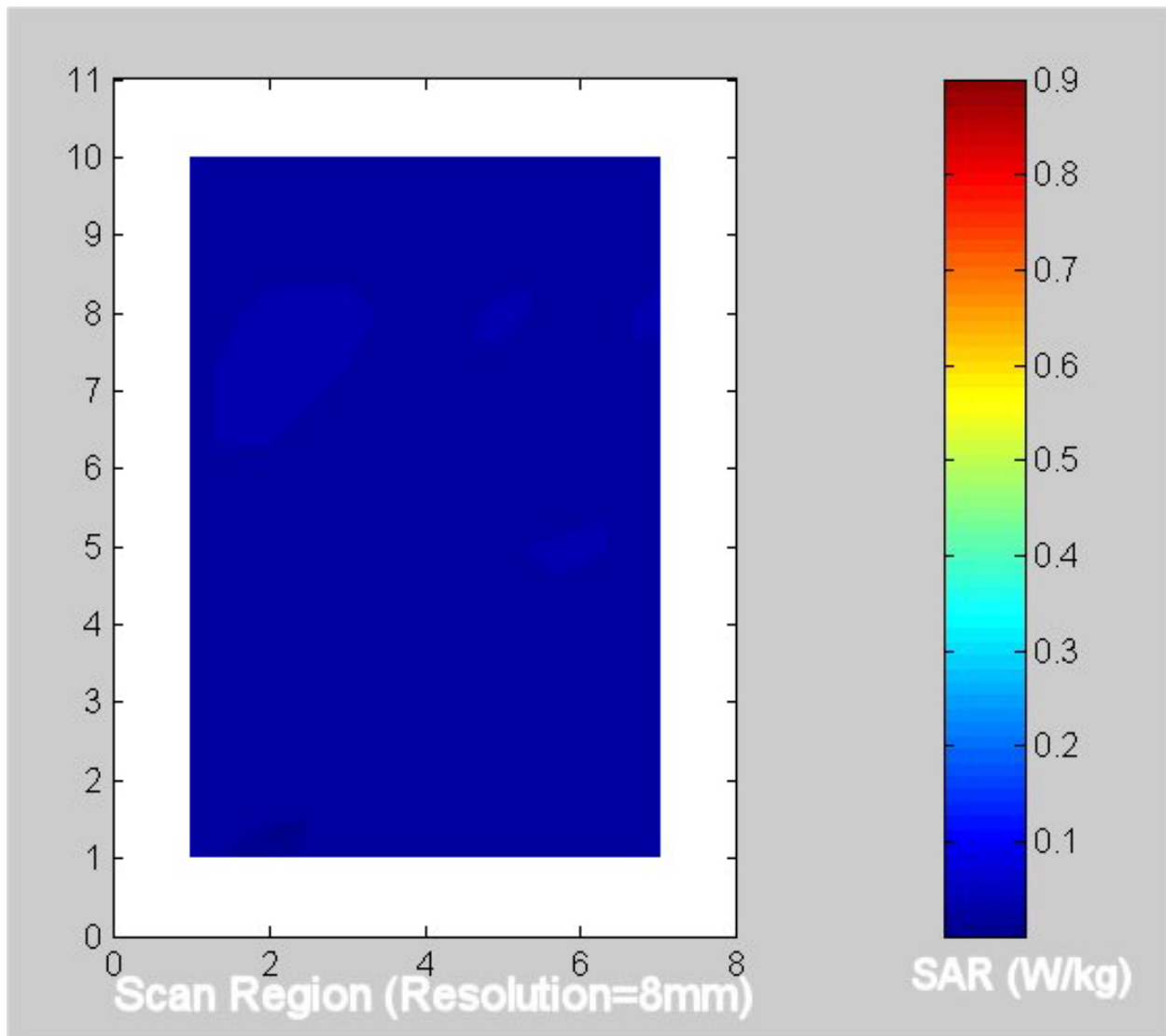


Fig. M. The measured SAR distribution for region 11 marked in Figs. A and B.

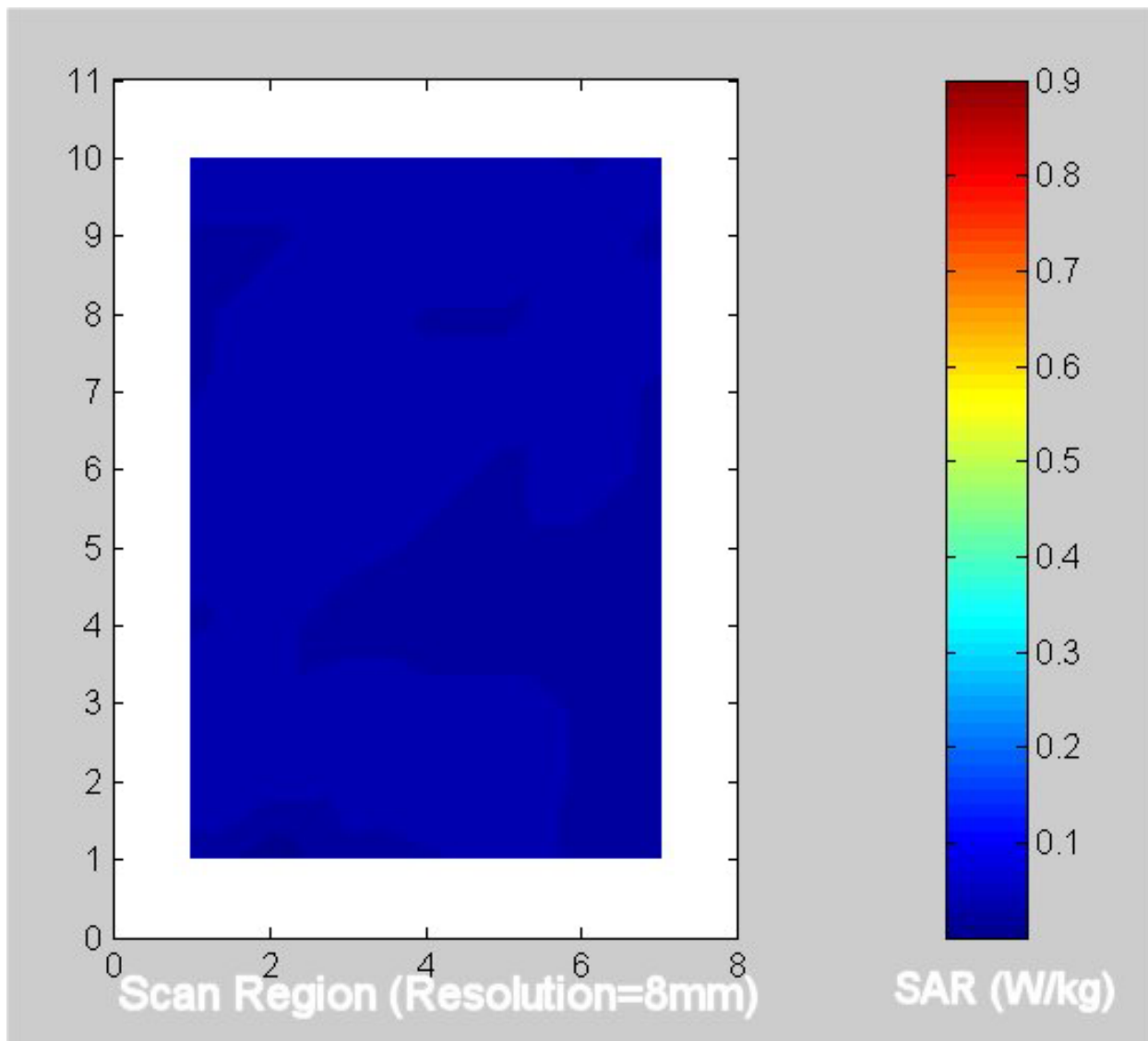


Fig. N. The measured SAR distribution for region 12 marked in Figs. A and B.

Table 1. The coarse scan measured SAR distribution for region 1. The SARs were measured with a resolution of 8 mm.

0.068	0.148	0.205	0.205	0.205	0.171	0.160
0.319	0.342	0.285	0.240	0.194	0.194	0.183
0.411	0.513	0.479	0.342	0.240	0.228	0.217
0.433	0.525	0.673	0.604	0.433	0.251	0.228
0.342	0.502	0.764	0.901	0.718	0.376	0.240
0.319	0.445	0.604	0.650	0.490	0.342	0.240
0.308	0.331	0.331	0.274	0.240	0.228	0.205
0.240	0.274	0.228	0.240	0.205	0.183	0.205
0.240	0.251	0.251	0.228	0.217	0.205	0.205
0.262	0.285	0.285	0.240	0.228	0.194	0.194

Table 2. The coarse scan measured SAR distribution for region 2. The SARs were measured with a resolution of 8 mm.

0.002	0.020	0.010	0.005	0.000	0.003	0.005
0.003	0.005	0.010	0.013	0.003	0.010	0.008
0.003	0.000	0.010	0.003	0.003	0.003	0.003
0.005	0.003	0.008	0.010	0.008	0.005	0.000
0.013	0.008	0.008	0.010	0.008	0.008	0.013
0.010	0.008	0.008	0.010	0.013	0.010	0.010
0.018	0.008	0.013	0.018	0.015	0.015	0.020
0.015	0.010	0.018	0.015	0.013	0.015	0.020
0.018	0.018	0.018	0.018	0.020	0.018	0.015
0.015	0.013	0.018	0.020	0.015	0.010	0.018

Table 3. The coarse scan measured SAR distribution for region 3. The SARs were measured with a resolution of 8 mm.

0.018	0.008	0.027	0.023	0.023	0.023	0.023
0.023	0.023	0.020	0.023	0.018	0.015	0.025
0.020	0.025	0.023	0.025	0.023	0.025	0.027
0.023	0.025	0.023	0.027	0.025	0.023	0.027
0.020	0.025	0.025	0.027	0.027	0.030	0.025
0.027	0.027	0.025	0.020	0.020	0.023	0.025
0.027	0.030	0.027	0.025	0.025	0.025	0.023
0.025	0.030	0.030	0.025	0.030	0.025	0.030
0.025	0.025	0.025	0.020	0.023	0.025	0.025
0.025	0.025	0.025	0.025	0.020	0.023	0.025

Table 4. The coarse scan measured SAR distribution for region 4. The SARs were measured with a resolution of 8 mm.

0.025	0.005	0.025	0.027	0.030	0.027	0.025
0.032	0.035	0.035	0.032	0.032	0.027	0.027
0.032	0.030	0.032	0.030	0.030	0.027	0.025
0.027	0.030	0.025	0.025	0.025	0.025	0.027
0.030	0.030	0.030	0.027	0.027	0.027	0.027
0.032	0.030	0.030	0.030	0.027	0.030	0.027
0.027	0.032	0.032	0.030	0.030	0.030	0.027
0.027	0.030	0.032	0.027	0.027	0.030	0.030
0.027	0.027	0.030	0.040	0.035	0.030	0.027
0.032	0.032	0.032	0.030	0.030	0.027	0.030

Table 5. The coarse scan measured SAR distribution for region 5. The SARs were measured with a resolution of 8 mm.

0.000	0.008	0.023	0.018	0.013	0.015	0.018
0.015	0.018	0.023	0.025	0.015	0.023	0.020
0.015	0.013	0.023	0.015	0.015	0.015	0.015
0.018	0.015	0.020	0.023	0.020	0.018	0.013
0.025	0.020	0.020	0.023	0.020	0.020	0.025
0.023	0.020	0.020	0.023	0.025	0.023	0.023
0.030	0.020	0.025	0.030	0.027	0.027	0.032
0.027	0.023	0.030	0.027	0.025	0.027	0.032
0.030	0.030	0.030	0.030	0.032	0.030	0.027
0.027	0.025	0.030	0.032	0.027	0.023	0.030

Table 6. The coarse scan measured SAR distribution for region 6. The SARs were measured with a resolution of 8 mm.

0.010	0.005	0.030	0.032	0.030	0.030	0.027
0.027	0.032	0.030	0.030	0.035	0.032	0.030
0.030	0.032	0.032	0.032	0.035	0.032	0.032
0.035	0.037	0.035	0.042	0.035	0.037	0.035
0.035	0.035	0.032	0.035	0.032	0.030	0.032
0.037	0.037	0.035	0.032	0.032	0.027	0.030
0.035	0.035	0.035	0.032	0.030	0.027	0.030
0.027	0.032	0.030	0.035	0.027	0.027	0.032
0.030	0.032	0.030	0.035	0.037	0.035	0.035
0.042	0.045	0.040	0.040	0.035	0.035	0.035

Table 7. The coarse scan measured SAR distribution for region 7. The SARs were measured with a resolution of 8 mm.

0.000	0.023	0.050	0.045	0.042	0.045	0.047
0.045	0.047	0.047	0.050	0.052	0.050	0.047
0.050	0.047	0.047	0.050	0.047	0.045	0.045
0.050	0.050	0.050	0.045	0.050	0.047	0.047
0.050	0.055	0.052	0.052	0.050	0.052	0.055
0.052	0.052	0.055	0.050	0.055	0.052	0.052
0.055	0.052	0.050	0.052	0.047	0.052	0.047
0.055	0.052	0.052	0.050	0.050	0.052	0.050
0.052	0.055	0.052	0.055	0.055	0.052	0.055
0.050	0.055	0.055	0.055	0.055	0.055	0.055

Table 8. The coarse scan measured SAR distribution for region 8. The SARs were measured with a resolution of 8 mm.

0.012	0.008	0.018	0.015	0.020	0.018	0.025
0.018	0.023	0.023	0.023	0.025	0.027	0.030
0.020	0.023	0.020	0.023	0.018	0.020	0.030
0.020	0.018	0.015	0.020	0.020	0.018	0.030
0.020	0.020	0.020	0.020	0.023	0.025	0.030
0.020	0.023	0.023	0.025	0.027	0.027	0.027
0.020	0.023	0.020	0.020	0.023	0.020	0.023
0.025	0.020	0.023	0.023	0.023	0.023	0.025
0.025	0.025	0.027	0.027	0.023	0.023	0.025
0.025	0.027	0.025	0.027	0.025	0.025	0.023

Table 9. The coarse scan measured SAR distribution for region 9. The SARs were measured with a resolution of 8 mm.

0.020	0.005	0.020	0.027	0.025	0.032	0.025
0.023	0.025	0.025	0.027	0.023	0.018	0.020
0.027	0.030	0.032	0.042	0.020	0.025	0.027
0.015	0.013	0.018	0.020	0.023	0.030	0.032
0.013	0.015	0.023	0.025	0.027	0.025	0.027
0.020	0.023	0.030	0.035	0.047	0.035	0.037
0.025	0.023	0.023	0.032	0.035	0.032	0.037
0.025	0.025	0.025	0.027	0.025	0.032	0.040
0.030	0.030	0.027	0.020	0.023	0.037	0.037
0.023	0.027	0.025	0.025	0.023	0.030	0.037

Table 10. The coarse scan measured SAR distribution for region 10. The SARs were measured with a resolution of 8 mm.

0.023	0.008	0.032	0.020	0.023	0.025	0.025
0.025	0.030	0.027	0.030	0.025	0.032	0.030
0.025	0.032	0.035	0.030	0.030	0.027	0.035
0.027	0.032	0.032	0.032	0.030	0.030	0.032
0.032	0.030	0.030	0.037	0.035	0.037	0.035
0.035	0.035	0.032	0.030	0.030	0.032	0.040
0.035	0.027	0.030	0.030	0.030	0.030	0.032
0.032	0.040	0.037	0.037	0.032	0.035	0.030
0.030	0.035	0.035	0.032	0.032	0.030	0.030
0.032	0.035	0.032	0.035	0.035	0.037	0.035

Table 11. The coarse scan measured SAR distribution for region 11. The SARs were measured with a resolution of 8 mm.

0.013	0.015	0.032	0.032	0.035	0.032	0.037
0.035	0.035	0.042	0.042	0.037	0.035	0.037
0.035	0.035	0.037	0.037	0.037	0.042	0.045
0.040	0.037	0.037	0.037	0.040	0.040	0.040
0.040	0.042	0.037	0.040	0.042	0.045	0.040
0.040	0.042	0.040	0.035	0.037	0.040	0.042
0.045	0.037	0.037	0.032	0.035	0.040	0.040
0.042	0.042	0.045	0.040	0.040	0.040	0.042
0.042	0.037	0.037	0.037	0.035	0.040	0.042
0.032	0.032	0.035	0.035	0.040	0.040	0.042

Table 12. The coarse scan measured SAR distribution for region 12. The SARs were measured with a resolution of 8 mm.

0.010	0.010	0.015	0.013	0.013	0.015	0.008
0.010	0.018	0.015	0.015	0.018	0.013	0.015
0.013	0.013	0.010	0.013	0.015	0.015	0.018
0.018	0.015	0.020	0.018	0.018	0.018	0.018
0.020	0.015	0.015	0.020	0.018	0.018	0.020
0.015	0.015	0.020	0.018	0.013	0.018	0.023
0.020	0.015	0.018	0.015	0.010	0.005	0.010
0.020	0.018	0.018	0.013	0.015	0.018	0.010
0.020	0.018	0.020	0.015	0.015	0.013	0.015
0.025	0.025	0.023	0.020	0.023	0.018	0.015